

## **APPLICATION OF**

**VIRGINIA ELECTRIC AND POWER COMPANY  
D/B/A DOMINION VIRGINIA POWER**

**CASE NO. PUE-2005-00018**

**For a certificate of public convenience  
and necessity for facilities in Loudoun County:  
Pleasant View-Hamilton 230 kV Transmission Line  
and 230 kV-34.5 kV Hamilton Substation**

### **REPORT OF HOWARD P. ANDERSON JR., HEARING EXAMINER**

**January 4, 2007**

On April 14, 2005, Virginia Electric and Power Company d/b/a Dominion Virginia Power (“DVP” or “Company”) filed with the State Corporation Commission (“Commission”) an Application of Virginia Electric and Power Company for Approval and Certification of Electric Facilities: Pleasant View-Hamilton 230 kV Transmission Line and 230 kV-34.5 kV Hamilton Substation (“Application”). The Company proposes to construct and operate in Loudoun County a 230 kV transmission line, which would run from the Company’s existing Pleasant View Substation to a new Hamilton Substation. The Company has identified a proposed route approximately 15.7 miles in length, and five alternative routes ranging from approximately 12.0 miles to 15.3 miles in length. Approximately 7.5 miles of the proposed route lies within the allotted territory of Northern Virginia Electric Cooperative. The remaining 8.2 miles of the proposed route and the site of the Hamilton Substation lie within the Company’s allotted territory.

On May 6, 2005, the Commission issued an Order for Notice and Hearing (“Order”) which directed the Company to publish public notice of its Application, established a procedural schedule, set hearing dates to receive public comment and evidence, and appointed a hearing examiner to conduct all further proceedings.

The Commission, in its Order, directed that a ruling be issued identifying all respondents who filed notices of participation on or before June 20, 2005. Respondents who filed as of June 20, 2005, are as follows:

- Beauregard Estates Homeowners Association;
- Dewayne Brock Davenport;
- Kincaid Forest Homeowner’s Association, Inc.;
- Leesburg Luxury Homes, L.L.C.;
- Loudoun County, Virginia;
- Northern Virginia Regional Park Authority;
- Orme Farm, L.L.C. and Cammack Brothers Partnership, L.P.;
- Renaissance Land, LLC;

- Richard R. Saunders, Jr. and Dianne Saunders;<sup>1</sup>
- Save the Trail, Inc.;
- Scenic Loudoun Legal Defense, Inc.;
- Town of Leesburg, Virginia; and
- Woodlea Manor Conservancy Homeowners Association.

## **PROCEDURAL HISTORY**<sup>2</sup>

### *Scenic Loudoun Motion to Dismiss or Amend*

The Commission noted in its Order that, subsequent to the Company's filing of its Application, but prior to the issuance of the Commission's Order, Scenic Loudoun Legal Defense, Inc. ("Scenic Loudoun") filed a Motion to Dismiss or Amend Application ("Motion"). Scenic Loudoun requested that the Commission dismiss or order the Company to amend its Application to include existing rights-of-way as a proposed route. The Motion identified the existing right-of-way as the Washington & Old Dominion Trail ("W&OD Trail" or "Trail"), which is owned and administered by the Northern Virginia Regional Park Authority ("Park Authority").<sup>3</sup>

The Commission accepted Scenic Loudoun's Motion as properly filed and permitted the Company, the Commission Staff ("Staff"), and persons participating as Respondents to file responses on or before July 6, 2005; Scenic Loudoun was permitted to reply on or before July 20, 2005; and the hearing examiner assigned to the case was directed to rule on the Motion.<sup>4</sup>

By Hearing Examiner's Ruling of September 12, 2005, I denied Scenic Loudoun's Motion, finding that requiring the Company to include in its application evidence that existing rights-of-way cannot be used for this project is contrary to law. Section 56-46.1 C of the Code of Virginia provides: "In any hearing the public service company shall provide adequate evidence that existing rights-of-way cannot adequately serve the needs of the company." I further found that the Company is not required to include existing rights-of-way as its preferred or alternative routes in its application.

### *Scenic Loudoun Motion to Certify*

On September 29, 2005, Scenic Loudoun filed a Motion to Certify a Material Issue of Law to the Commission for Consideration and Resolution ("Motion to Certify") seeking certification of the following "material issue":

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<sup>1</sup>The Saunders withdrew as respondents on February 9, 2006, and Mr. Saunders spoke as a public witness. (Tr. 701); Ruling dated February 17, 2006.

<sup>2</sup>This section provides information on the issues raised prior to the hearing. The motions addressed here are certainly not all of the motions filed, but rather the motions considered noteworthy.

<sup>3</sup>The Company purchased what is now the W&OD Trail in 1968 from the Washington and Old Dominion Railroad. The Trail was previously a railroad bed approximately 100 feet wide extending from Alexandria to Purcellville. In 1978, the Company sold the property to the Park Authority for public use, but retained existing and future utility easements.

<sup>4</sup>Order at 4.

Before the Commission can find that “existing rights-of-way cannot adequately serve the needs of the company” under Virginia Code Section 56-46.1 C, must the Company provide evidence that the existing right-of-way is not *operationally or physically feasible* in order to meet the needs of the Company?

In support, Scenic Loudoun stated that, while the Company bears the burden of proving that existing rights-of-way cannot adequately serve the needs of the Company, the legal standard is not clearly defined, thereby making it impossible for respondents to know with any degree of confidence if the Company has met its burden of proof, until the case is over.

By Hearing Examiner’s Ruling of October 21, 2005 (“October 21 Ruling”), the Motion to Certify was denied. However, after further finding that the Trail was not significantly different from many of the Company’s alternative routes, I directed the Company to publish additional notice that the Trail would be considered as a potential route for the Company’s proposed transmission line. The Ruling also provided for any additional respondents to file notices of participation.

On November 30, 2005, the following respondents filed Notices of Participation:

- Oatlands, Inc.;
- The National Trust for Historic Preservation; and
- Rokeby Farm Property Owners Association, Inc.

#### *Park Authority Objection and Motion for Reconsideration*

On October 25, 2005, the Park Authority filed an Objection and Motion for Reconsideration, or in the Alternative, for Certification, and Expedited Consideration Concerning October 21, 2005, Hearing Examiner’s Ruling (“Park Authority Motion”) in which, among other things, it objected to the supplemental notice directed in the October 21 Ruling.

By Hearing Examiner’s Ruling of October 28, the Park Authority Motion was denied. It had become apparent that the Trail should be considered as a potential route if a need for the proposed transmission line were found. The Company had stated in its Application that it considered, but rejected, the Trail as a potential route because of significant local opposition. The Ruling clarified that although the original notice was adequate for the Commission to consider the Trail as a potential route, it was reasonable and desirable to inform the public of this determination. Finally, the Ruling clarified that the supplemental notice requirement was not intended to establish a precedent because the requirement was based on the facts particular to this case.<sup>5</sup>

#### *Staff Motion to Dismiss, in Part, the Application*

On June 23, 2005, Staff filed a Motion to Dismiss, in Part, the Application (“Staff Motion”) pertaining to the Company’s request for a certificate of public convenience and necessity for the 230 kV-34.5 kV Hamilton Substation. Staff argued that a 230 kV-34.5 kV substation is an ordinary

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<sup>5</sup>Ruling of October 28, 2005, at 2, 3.

extension of facilities and thus does not require a certificate pursuant to § 56-46.1 of the Code of Virginia. Staff further contended that an application for a substation at a particular location might limit consideration of alternative locations for termination of the transmission line and alternative routings to the termination point.

By Ruling dated July 29, 2005, the Staff Motion was denied. Section 56-265.2 of the Code of Virginia requires a public utility to obtain a certificate prior to the construction, enlargement or acquisition of any facilities used in public utility service. The single exception is when a public utility constructs, enlarges or acquires facilities that are “ordinary extensions or improvements in the ordinary course of business.” This terminology is not further explained or defined in the statute. Further, the Commission has not set a standard and has made this determination on a case-by-case basis.<sup>6</sup> I found that because the Company had requested a certificate that included the proposed Hamilton Substation, the Company should receive a hearing on its complete application. Further, I found that consideration of alternative routes would not be impeded by the Company’s proposed location for the Hamilton Substation.

#### *Company Motion for a Protective Ruling*

On July 1, 2005, the Company filed a Motion for Entry of a Protective Ruling to establish procedures by which confidential or proprietary information and documents, as well as information and documents that may require a higher level of protection from disclosure to competitors, are to be handled in this proceeding.

By Ruling of August 5, 2005, the Company’s Motion for a Protective Ruling was granted. The Town of Leesburg (“Leesburg”) offered modifications to the proposed protective ruling which were not accepted. The Protective Ruling established a procedure for the handling of sensitive documents and information consistent with prior Commission orders and appropriate for this proceeding. Due to the large number of participants in this proceeding, Staff’s suggestion of a matrix to identify each response to an interrogatory or request for production of documents afforded confidential treatment, and a list of all parties that had access to the material provided in that response was adopted.

#### *Loudoun County Motion to Bifurcate*

On October 5, 2005, Loudoun County (“Loudoun”) filed a Motion to Bifurcate and to Extend Filing Date for Prefiled Testimony. Loudoun sought to modify the procedural schedule in two ways. First, Loudoun requested that the proceeding be bifurcated to consider separately the technological feasibility of placing the proposed transmission line underground, and whether such placement would minimize adverse environmental impacts. Second, Loudoun requested a corresponding extension of the filing deadlines so the feasibility of placing the proposed facility

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<sup>6</sup>*Application of Rappahannock Electric Cooperative*, Case No. PUE-1992-00035, 1992 S.C.C. Ann. Rep. 337, 338; *Virginia Electric and Power Company*, Case No. PUE-1989-00057, 1991 S.C.C. Ann. Rep. 263, 265 Opinion dated June 13, 1991, (Certificate required for a 500 kV-230 kV substation); *Virginia Electric and Power Company*, Case No. PUE-1987-00047, 1987 S.C.C. Ann. Rep. 298 (Certificate required for a 500 kV substation); *Virginia Electric and Power Company*, Case No. PUE-1981-00049, 1982 S.C.C. Ann. Rep. 489 (Certificate required for 500 kV transmission line and 500 kV station); *Application of Potomac Edison Company*, Case No. PUE-1986-00002, 1986 S.C.C. Ann. Rep. 300; *Application of Virginia Electric and Power Company*, Case No. PUE-1986-00027, 1986 S.C.C. Ann. Rep. 325.

underground could be explored. Loudoun further argued in its reply to respondents' comments that making a threshold determination regarding the feasibility of undergrounding and whether undergrounding would degrade the existing electrical system would allow Staff and the parties to focus on the distinct issue of feasibility.

In support of its request, Loudoun attached a letter from Gregory A. Whirley, acting commissioner of the Virginia Department of Transportation ("VDOT") to Delegate Joe T. May of the Virginia House of Delegates, assuring Delegate May that VDOT would give full consideration to Loudoun County's proposal to place the transmission line underground along the Route 7 corridor around Leesburg.<sup>7</sup>

By Ruling of October 21, 2005, Loudoun County's Motion to Bifurcate was denied. The Ruling clarified that the threshold issue of this case is whether the proposed transmission line is needed. Only if a need for the line is found would the issue of routing, which would include consideration of placing the line underground, be determined. The Ruling stated that, while negotiations among the parties or the parties and VDOT are encouraged, the Commission is mandated to make a final determination of all issues, including the underground issue, involved in the case.

#### *Joint Motion for Stay of Proceedings*

On March 15, 2006, Loudoun and Leesburg filed a Joint Motion for a Stay of Proceeding Pending Completion of Legislative Study ("Joint Motion") seeking a continuance of the proceedings pending completion of a legislatively directed study by the Joint Legislative Audit and Review Commission ("JLARC") evaluating the placement of high-voltage transmission lines in Virginia.<sup>8</sup> The Joint Motion stated that the General Assembly will use the results of the study to provide important legislative guidance to the Commission regarding policy and issues related to placing high voltage transmission lines underground. This legislative action, according to the Joint Motion, would go directly to the core issue of this proceeding and would ensure that the decision made in this and future transmission line cases would reflect the policy of the Commonwealth as articulated by the General Assembly.

On March 20, 2006, oral argument was heard on the Joint Motion. At the conclusion of oral argument, I denied the Joint Motion on the following grounds: (1) funding for the study had not been approved; (2) the forthcoming guidance from the General Assembly, if any, is speculative at this point in time; and (3) the Company is entitled to a reasonably prompt hearing on its application based on current law.

#### *Modified D Conception*

From March 13 through March 16, 2006, representatives from DVP, respondents, and I viewed the Company's proposed and alternative routes and met with affected property owners to hear their concerns. I also viewed the W&OD Trail from its beginning in Arlington to its end in Purcellville. My observations encompassed the entire study area.

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<sup>7</sup>Ex. No. 12.

<sup>8</sup>HJR 100; Patron: Delegate Joe T. May; Tr. 732.

Based on my observations it was evident that a route that basically followed the Company's D3 Route with some alterations should be considered.<sup>9</sup> The primary modification would be to parallel the W&OD Trail on its north side between the Trail's intersection with Route 7 and Route 9 southeast to the Trail's intersection with Route 7 in the southwest section of Leesburg ("Trail B").

I convened a pre-hearing conference on March 20, 2006, to address matters and motions prior to commencement of the evidentiary hearing on March 27, 2006. At the conclusion of the conference, I announced that the modified D route should also be considered and gave its parameters.<sup>10</sup>

In his opening statement on March 27, 2006, counsel for the Company noted that property owners along one segment of the modified D route had not received individual notice as required by the recently amended section E of § 56-46.1 of the Code of Virginia.<sup>11</sup>

On March 28, 2006, I called Company witness John Bailey to testify regarding two issues. First, is the modified D route a viable route worthy of consideration? Second, has adequate notice pursuant to the recently amended § 56-46.1 been given? After examination of Mr. Bailey by counsel, I scheduled oral argument on the two issues for the following morning.

On March 29, 2006, oral argument was heard as scheduled. By Ruling dated March 31, 2006, I determined that the modified D route is a viable route that should be considered and further notice was required to property owners within certain segments of the route not previously afforded notice pursuant to § 56-46.1 of the Code of Virginia. Accordingly, I directed the Company to provide the additional notice, made provisions for additional comments and respondents and adjourned the proceeding until June 19, 2006.

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<sup>9</sup>Staff also pointed out that closer scrutiny should be given to the Company's northern routes. The description as contained in the notice is as follows:

Modified D Route is approximately 12 miles long and originates at Pleasant View Substation. This route parallels an existing transmission line corridor north for approximately one mile, then turns west and parallels the south side of Route 7 for approximately 1.1 miles, and then crosses to the north side of Route 7 and continues to the west paralleling the north side of Route 7 for approximately 0.6 mile. At the Route 7/Route 15 interchange, the route turns southwest and parallels the Route 7 Bypass for approximately 2.8 miles to the west side of Leesburg. At the intersection of Dry Mill Road and Route 7 Bypass the route leaves the Bypass and parallels the northeast side of the W&OD Trail for approximately 2.3 miles. At a point south of the intersection of Route 9 and Route 7 the route turns west/northwest for approximately 0.6 miles until it intersects with Route 7. The route then parallels either the north or south side of Route 7 for approximately 1.1 miles where it intersects with the Company's Proposed Route located on the north side of Route 7. The route then parallels the north side of Route 7 for approximately 2.4 miles to the Hamilton Substation site.

<sup>10</sup>The Virginia Supreme Court in *Board of Supervisors of Campbell County, Samuel W. Falwell, et al. v. Appalachian Power Company, et al.* 216 Va. 93, 102 (1975), held that "it was proper for the Commission to have considered the alternate routes to the one proposed by [the Company]; and for it to have requested a study made of a route which the evidence developed as one that might, to a greater degree than other proposed routes, reasonably minimize adverse impact on the scenic and environmental assets of the area."

<sup>11</sup>Tr. 1037-1039.

On May 23, 2006, Notices of Participation were filed by Randolph A. Sutliff, Esquire, on behalf of certain members of the Estates at Shenstone Farm Homeowner's Association; and by Benjamin D. Leigh, Esquire, on behalf of the Loudoun County Fair and Associates, Inc. ("Loudoun Fair"). On June 9, Loudoun Fair filed a Motion to Withdraw as a Respondent; the motion was granted by Ruling dated June 12, 2006.

## **PUBLIC WITNESSES**

The Commission's Order scheduled public hearings on the application in Leesburg on February 8 and 9, 2006. Of the one hundred sixty-seven public witnesses testifying at the hearings in Leesburg, the overwhelming majority urged the Commission to require that the proposed transmission line be placed underground. Delegate Joe T. May outlined the reasons for placing transmission lines underground. He stated that undergrounding would protect property values, not only of property owners directly impacted by the right-of-way, but also of adjacent property owners who would not be compensated for their loss of property values. Delegate May noted that the state of Connecticut has mandated that all of its transmission lines be placed underground to avoid possible health effects. Delegate May stated that the strong electromagnetic fields produced by transmission lines are shielded by placing the lines underground.

In response to questions regarding the reliability of underground transmission lines, Delegate May pointed out that underground and underwater cables have been used for at least one hundred years with very high reliability. Placing the lines underground prevents damage from high winds, small planes, and ice storms, according to Delegate May.

Delegate May acknowledged the higher cost of installing the transmission line underground compared to overhead, but contended this cost difference fails to take into account the impact on property values, life cycle costs, or possible health considerations. When these considerations are taken into account, Delegate May argued the cost of underground is much closer to the cost of overhead transmission lines.

Delegate May also testified that he has requested the JLARC to study the impact of overhead lines on adjacent property values and generate formal criteria for the siting and implementation of transmission lines. Delegate May noted that Loudoun County has the authority to enact a special district to pay for any difference in cost between overhead and underground lines. Delegate May strongly urged the Commission to consider putting the proposed transmission line underground.<sup>12</sup>

Roger Mukai, a resident of Kincaid Forest, pointed to the Company's 2005 net earnings of \$1.1 billion and asked why the Company could not spend \$70 million to place the transmission lines underground.<sup>13</sup> Julia Bergeman, who resides in Historic Paeonian Springs, pointed out that Loudoun County is the twenty-second wealthiest county in the United States and Dominion earned net profits of \$1 billion in 2005 and \$2.4 billion in 2004. She stated that burying the transmission

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<sup>12</sup>Tr. 258-262.

<sup>13</sup>Tr. 315.

lines would cost very little when compared to the revenue of Dominion Virginia Power and the income of residents living in one of the richest counties in the United States.<sup>14</sup>

Many public witnesses raised concerns about the electromagnetic fields that would be generated by the proposed line.<sup>15</sup> Parents testified regarding studies linking electromagnetic fields and childhood leukemia. Witnesses who were cancer survivors or had family members who were cancer survivors stated they could not take the chance of living near the transmission line.<sup>16</sup> Noting the negative impact of transmission lines on property values, several witnesses stated they would sell their homes at a loss rather than live near a transmission line. John Gamble, who lives in the Kincaid Forest subdivision which would be impacted by the D2 alternative, testified that his thirteen-year old son is a special needs child with a compromised immune system. Mr. Gamble explained that he constructed his house with wide doorways and a special bathroom to accommodate his son's wheelchair. Regardless of the cost of moving, Mr. Gamble stated that he could not take the chance of his son becoming a statistic in the electromagnetic field health studies.<sup>17</sup>

Eric Prugh, also a resident of Kincaid Forest, voiced the concerns of many public witnesses that the transmission line would reduce property values. Mr. Prugh estimated the loss in value to his home at twelve percent, which in his case would represent a loss of \$70,000 to \$80,000. Mr. Prugh stated that homeowners should not bear the financial burden of an electric company's expansion costs and the lines should be built in areas that would have the least residential impact.<sup>18</sup>

Earl Hower, chairman of the Leesburg Tree Commission, stated the Tree Commission is "dedicated to promoting tree preservation and planning within the Town, providing a healthy diverse tree canopy, and ensuring aesthetic quality of life for all citizens."<sup>19</sup> Mr. Hower stated that, using the latest satellite telemetry, the Commission analyzed the land use patterns of Leesburg between the years 1992 and 2001. The final analysis showed, according to Mr. Hower, that Leesburg lost 71 percent of its tree canopy and 23 percent of its open space, and had a 112 percent increase in its urbanized area. Mr. Hower testified that the existing trees found along the W&OD Trail as it passes through Leesburg represent a significant percentage of the remaining tree canopy within the Town of Leesburg's boundaries. Mr. Hower further testified that, between the mid and latter part of the 1990's, Loudoun County was losing, on average, 14 acres of trees a day through development.<sup>20</sup>

Tony Virgilio stated that, although construction of the power line along the Trail would destroy thousands of trees, he believes developers, with the consent of local officials, built homes adjacent to the Trail knowing that power lines eventually would be located there. Mr. Virgilio pointed out that transmission lines are already on the Trail from Arlington through Fairfax to

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<sup>14</sup>Tr. 441, 442.

<sup>15</sup>Tr. 123.

<sup>16</sup>Tr. 695-698.

<sup>17</sup>Tr. 286-288.

<sup>18</sup>Tr. 391.

<sup>19</sup>Tr. 405.

<sup>20</sup>Tr. 405, 408, 409.



Loudoun, and anyone should have realized that it was just a matter of time before the lines were extended farther west on the Trail.<sup>21</sup>

Douglas Fahl argued for the protection of private property and stated that the Company should use its existing right-of-way along the Trail. Mr. Fahl noted that much of the Trail east of Leesburg is open and impacted by power lines, yet it is still used extensively by the public. Mr. Fahl stated that use of the Trail by the Company for its power lines will not preclude use of the Trail for recreation.<sup>22</sup>

Many public witnesses voiced their concern for the loss of trees along the Trail and along the Company's proposed route.<sup>23</sup> Patrick Sloyan testified that using the Trail as right-of-way would result in the destruction of 26,000 trees.<sup>24</sup> Timothy Bigler described the Trail as a public treasure.<sup>25</sup> Sandra Kane testified that the W&OD Trail is one of Northern Virginia's most valuable resources and a remarkable recreational asset that must be protected.<sup>26</sup>

Dennis Virts owns thirty-five acres of land that would be impacted by the Company's proposed E7 route. Mr. Virts and his wife bought the property to donate it to the county for a community park. The proposed line would take out many large oak trees as well as a moon tree. This tree orbited the earth as a seedling in Apollo 11 in 1971.<sup>27</sup>

Jay Fleming owns property on Route 15 that would be impacted by the Company's proposed E7 route. The proposed route will travel 1,800 feet along the northern boundary of his farm. Mr. Fleming counted the number of trees that would be destroyed on just 300 feet of the 1,800 feet along his property line that would be impacted. Mr. Fleming claims that one hundred eighty-five trees on this section alone would be destroyed. Mr. Fleming stated that fifty-four of these trees are over a foot in diameter and one of the trees is over four feet in diameter.<sup>28</sup>

Throughout the hearings a number of public witnesses questioned why the Company would be allowed to take private property when it owns existing right-of-way that could easily accommodate the entire project at no additional acquisition cost to the Company.<sup>29</sup> Jean Hazlett pointed out that although there are transmission lines on the Trail east of Leesburg, people still enjoy the Trail.<sup>30</sup>

The W&OD Trail is used by two million people a year and brings \$7 million in revenue to the region annually.<sup>31</sup> Dr. Douglas Lipp<sup>32</sup> testified that the Trail is a haven for bikers, joggers, and

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<sup>21</sup>Tr. 639-642, 683.

<sup>22</sup>Tr. 200.

<sup>23</sup>Tr. 126.

<sup>24</sup>Tr. 103,

<sup>25</sup>Tr. 283.

<sup>26</sup>Tr. 291.

<sup>27</sup>Tr. 602.

<sup>28</sup>Tr. 625, 626.

<sup>29</sup>Tr. 6, 32, 34, 35, 60, 171, 175, 339, 355, 594, 615, 659, 671, 676, 692.

<sup>30</sup>Tr. 363. Ms. Hazlett also favored placing the lines underground.

<sup>31</sup>Tr. 341-343.

<sup>32</sup>Dr. Lipp is a clinical psychologist.

people on horseback. The Trail, stated Dr. Lipp, is a part of the fabric of a healthy community and an accessible, natural stress reducer for hundreds of thousands of Northern Virginians.<sup>33</sup>

David Sarver stated the Company's proposed route is a misguided attempt to protect the Trail. Mr. Sarver stated that the proposed E7 route is much longer, significantly more expensive, more damaging to scenic viewsheds, more harmful to the environment as a whole, and will negatively impact more historic sites than using the Trail.

Mr. Sarver argues that the public interest is not served by the unnecessary taking of private land to create an alternative route that costs approximately 300 percent more than using existing right-of-way at the expense of DVP ratepayers. Mr. Sarver maintains that the only question that should be asked is how best to minimize the effects of the line on the W&OD Trail.<sup>34</sup>

Henry Harris and his family own Digges Valley Farm that would be crossed by the Company's proposed E7 route. Mr. Harris estimated that the Company's right-of-way for the proposed route would take about twenty acres of his family's land, and the line would be visible throughout Digges Valley. Mr. Harris emphasized that the farm has been owned and operated by his family for several generations; his family has never developed one square inch of their land. Mr. Harris pointed out that his land has historic sites, beautiful vistas, and thousands of trees. Mr. Harris does not understand how the Commission can justify condemning his land or anyone's land when there is another option that requires no condemnation at all. Mr. Harris would not object if the line is placed underground, but states that he and his family will resist the taking of their land for an overhead transmission line.<sup>35</sup>

Donna Rogers testified that she and her husband own a 1200-acre farm that would be impacted by the Company's proposed E7 route. Mrs. Rogers stated that the farm is part of the Goose Creek Historic District. She and her husband have been placing parts of their farm under permanent open space conservation easements. Mrs. Rogers stated that the property has many old historic houses and outbuildings which are maintained in excellent condition. Mrs. Rogers pointed out that old trees, streams, and wildlife are abundant on the farm. She emphasized that by placing the lines underground, the Company would avoid the time and expense involved in litigation engendered by trying to obtain easements for overhead lines.<sup>36</sup>

## **PUBLIC COMMENTS**

Although hundreds of letters, emails, and petitions have been filed with the Commission as public comment in this proceeding, they can be succinctly summarized as follows: We don't want overhead transmission lines anywhere in the Town of Leesburg or Loudoun County and if there must be a transmission line, place it underground. Residents oppose the modified D route because it encroaches on homes and trees along the Trail. People urge the Commission to "Save the Trail" because it has trees and is used by so many. Citizens oppose the Company's proposed E7 route

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<sup>33</sup>Tr. 311.

<sup>34</sup>Tr. 349.

<sup>35</sup>Tr. 612-616.

<sup>36</sup>Tr. 180-183.

because the overhead lines will impact new developments, historic assets, and the scenic beauty of Loudoun County. Everyone, it seems wants to place the transmission line underground, but no one has offered to pay the substantial additional cost of undergrounding this transmission line. In a county (Loudoun) that is losing fourteen acres of trees a day to development and a town (Leesburg) that has allowed seventy percent of its tree canopy to be destroyed, there is a hue and cry to “save our trees” now that a transmission line is needed to support the rampant new development.

Kristen C. Umstattd, mayor of the Town of Leesburg, spoke as a public witness and filed a written statement as a private citizen.<sup>37</sup> Mayor Umstattd supports the Company’s preferred E7 route with a modification that would avoid the southwestern corner of Leesburg’s Woodlea Manor subdivision. Under Mayor Umstattd’s suggested modification, the route would follow Loudoun County’s proposed underground route from the point where the two routes cross, about 4,000 feet south of Foxfield Lane, to the point at which the Company’s proposed route and the County’s underground route cross again, about 600 feet east of Canby Road.

Mayor Umstattd opposes using the W&OD Trail for either an overhead or underground route. Mayor Umstattd pointed out that the Northern Virginia Regional Commission (“NRVC”) notified all of Northern Virginia’s General Assembly members of its opposition to using the Trail for the proposed transmission line, and a bipartisan group of legislators informed the Commission of their concerns about using the Trail for the proposed transmission line. These legislators included Senator Patsy Ticer, Senator Russ Potts, Senator Bill Mims (now with the Attorney General’s office), Delegate Joe May, and Delegate Harry Parrish (now deceased), among others. At the federal level, Congressman Frank Wolf wrote the Commission in support of the position of all of Northern Virginia’s local governments and expressed his concern about the negative impact on the W&OD Trail should the Commission select that route.

Mayor Umstattd claimed that the terrain along parts of the Trail would not support a transmission line. She further stated that DVP representative Eva Hardy, after a tour of the Trail with Senator Mims, agreed in a letter dated September 2, 2004, to Senator Mims, Senator Potts, and Delegate May that the Company would no longer consider use of its existing right-of-way along the Trail through downtown Leesburg and west of Leesburg.

Mayor Umstattd further stated in her comments that DVP and VDOT have been convinced that the steep slopes along the Leesburg Route 7 Bypass also cannot be used for this transmission line project. Mayor Umstattd stated that, after hearing from two Leesburg communities threatened by the transmission line (Kincaid Forest and Beauregard Estates), the Company decided to further amend its position and file a preferred southern route that avoids all sections of the W&OD Trail and all Leesburg neighborhoods with the exception of Woodlea Manor. Mayor Umstattd wishes to thank DVP for accommodating the Town of Leesburg and, with the one adjustment around Woodlea Manor, she supports the Company’s preferred E7 route through Loudoun County.

Richard and Dianne Saunders initially filed as Respondents in this case, but subsequently withdrew and requested that their prefiled testimony be treated as public comment. Mr. and Mrs. Saunders’ comments typify the arguments of residents impacted by the Company’s proposed E7 route. The Saunders live at 18854 Silver Hill Lane in Loudoun County. They purchased their

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<sup>37</sup>Comments filed February 6, 2006.

property in 1987 and completed construction of their house on the property in 1988. The tract of land adjoining the rear of the Saunders' property is over 150 acres and is owned by Lake Hill Associates, LC; the tract has been approved for a subdivision of approximately forty-seven residential lots of three to five acres each ("Lake Hill Property").

The Company's proposed E7 route and alternate E8 route would traverse the Lake Hill Property directly behind the Saunders' property. The Saunders state there are small trees on their property but the Lake Hill Property adjoining them has numerous large, mature oak trees that would be removed if the Company's proposed route is approved. The Saunders claim that removal of these mature trees will mean the transmission lines and support structures will be plainly visible from their home.

The Saunders question whether a transmission line of the magnitude proposed by the Company is necessary and why the line cannot be placed underground as requested by a majority of the residents. The Saunders point out that, because the Company's proposed easement will not cross their property, they will not be entitled to any compensation whatsoever although their property value will be diminished significantly by the presence of the transmission line adjacent to their lot. The Saunders note that, while the Company's proposed E7 route will destroy pristine property, the line could be placed along Route 7 and the Trail which are already disturbed areas and existing right-of-way.

The Saunders point out that, prior to purchasing their property, they not only investigated the title to what became their property, but also surrounding properties to make certain there were no planned highways or right-of-way which might negatively affect their property. The Saunders state that their financial investment in their property was, and continues to be, substantial.

The Saunders state that it has long been public knowledge that DVP retained and continues to own a right-of-way along the W&OD Trail and that approximately 65 percent of the Trail is already utilized for above-ground transmission lines. Therefore, the Saunders point out that the risk of the installation of transmission lines along the W&OD Trail has been known for decades. On the other hand, the Saunders state that they now find themselves confronted with an unexpected risk, one that, in their opinion, is completely unjustified in light of the existing right-of-way along the W&OD Trail.

The Saunders note that when DVP first suggested the need for transmission lines along its existing right-of-way on the W&OD Trail, petitions were circulated to "Save the Trail." The Saunders point out that the wording of the question stated in the petition, whether or not a transmission line should be placed on the Trail, produced an obvious response. The Saunders contend that if the question had been phrased, "Should Dominion place its transmission lines within its existing right-of-way along the W&OD Trail or should it place them in another location, which might be across your property and/or your neighbor's property," there might have been fewer signatures on the petition. The Saunders maintain that, if the use of those portions of the Trail where power lines already exist is any indication, there will be no reduction in the use of the Trail as a result of the presence of the new transmission lines. The Saunders further point out that the officers and directors of Save the Trail, Inc. either live adjacent to or very close to the Trail.

With regard to cost, the Saunders argue that the proposed transmission line could be placed along Route 7 and the Trail, thereby significantly reducing the cost to purchase new right-of-way. Further, since the route along Route 7 and the Trail is significantly shorter than the Company's proposed route, the Saunders contend the construction costs should be lower also. The Saunders claim that, because of recently approved subdivisions, the cost of purchasing right-of-way along either route E7 or E8 will be in the tens of millions of dollars.

Barbara Notar, founder and past president of Save the Trail, presented petitions containing 4,740 signatures.<sup>38</sup> The petitions stated:

"We the undersigned, oppose Dominion Virginia Power's plans to place transmission lines along the W&OD Trail between Ashburn and Purcellville," or

"We, the undersigned, oppose Dominion Virginia Power's plans to erect overhead transmission lines along the W&OD Trail between Ashburn and Purcellville."

The Commission received approximately 272 petitions from individuals of Woodlea Manor in Leesburg. The petitions stated:

I request that the SCC direct Dominion Virginia Power (DVP) to construct the high voltage transmission line on the original easement located on the W&OD Trail for the following reasons:

1. The W&OD Trail was built on land purchased from DVP;
2. DVP sold the land to the Northern Virginia Regional Park Authority (NVRPA) nearly 30 years ago, but retained an easement for transmission lines with the express purpose of placing transmission lines there to meet current and future needs for power;
3. The NVRPA, homeowners, and business owners along the W&OD Trail had full disclosure of the transmission line easement before closing on their properties;
4. Property owners along all alternate routes purchased their properties unencumbered by a power transmission line easement;
5. All routes except the W&OD Trail require the taking of private property at significant additional cost; and
6. The original easement along the W&OD Trail is the shortest, flattest, and least costly route;

I understand that DVP has petitioned the SCC to construct this power line. I respectfully ask the SCC to carefully consider the existing easement for this purpose and to disapprove any and all alternate routes.<sup>39</sup>

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<sup>38</sup>Tr. 4028; Ex. No. 93 at Ex. 1.

<sup>39</sup>Petitions were passed to the file by Hugh Perry at the hearing on February 8, 2006.

Ben Weber of 19017 Harmony Church Road, wrote that his family chose not to purchase a house next to the W&OD Trail because they knew DVP owned a right-of-way on the Trail for power lines. Instead, the Webers purchased a home on Harmony Church Road that would be impacted by the Company's proposed E7 route. Mr. Weber stated that he planned for the future and DVP planned for the future; exempting the Trail from consideration in this case was a political move. Mr. Weber states that he will personally fight overhead transmission lines to his last breath and that moving the line away from the Trail will do more damage to the overall countryside.

Save Scenic Loudoun/Neighbors Against the Southern Transmission Line ("Save Scenic Loudoun") collected more than 800 signatures of citizens opposed to an overhead southern transmission line route through Loudoun County. Save Scenic Loudoun is a citizens group that formed in October of 2004, when the Company announced preliminary southern route alternatives for its proposed transmission line.

### **RESOLUTIONS OF LOCALITIES**

The following localities and commission submitted resolutions or comments in opposition to the use of the Company's existing right-of-way along the W&OD Trail:

- *The Town of Leesburg* – two resolutions, dated May 25, 2004, and September 28, 2004;
- *The Town of Purcellville* – two resolutions, dated June 8, 2004 and November 9, 2004, to place the proposed line underground along the Route 7 corridor;
- *The Town of Hamilton*;
- *The Town of Herndon*;
- *The Town of Hillsboro* in opposition to use of the W&OD Trail and in favor of undergrounding the line;
- *The Town of Vienna*;
- *Loudoun County*;
- *Arlington County*;
- *City of Alexandria*;
- *Fairfax County*; and
- *Northern Virginia Regional Commission*.

## **SUMMARY OF THE RECORD**

The evidentiary hearing in this matter commenced as scheduled on March 27, 2006. As previously noted, it became evident that additional notice for the modified D route was required and the hearing was continued to June 19, 2006. On June 19, 2006, the hearing was reconvened and, with the exception of weekends and holidays, proceeded until its conclusion on July 13, 2006. Counsel appearing were:

- James C. Dimitri, Esquire; Stephen H. Watts II, Esquire; Lisa S. Booth, Esquire; Pamela Johnson Walker, Esquire; and Jill C. Nadolink, Esquire, for Dominion Virginia Power;
- Thomas B. Nicholson, Esquire, for the Town of Leesburg and Beauregard Estates Homeowners Association; and Barbara Beach, Esquire, for the Town of Leesburg;
- John W. Montgomery, Jr., Esquire, for the County of Loudoun;
- Michael A. Montgomery, Jr., Esquire; and Anthony Gambardella, Esquire, for Orme Farm and Cammack Brothers;
- John H. Rust, Jr., Esquire, for Save the Trail;
- Cliona Mary Robb, Esquire, for the Northern Virginia Regional Park Authority;
- James E. Cornwell, Jr., Esquire; M. Ann Neil Cosby, Esquire; Benjamin R. Lacy, IV, Esquire; Robert McKew, Esquire; Kenneth F. Parks, Esquire; and Michael Gartner, Esquire,<sup>40</sup> for Scenic Loudoun Legal Defense and Woodlea Manor Conservancy Homeowners Association;
- Kelly Thompson Cochran, Esquire; David S. Wolf, Esquire; and William R. Richardson, Jr., Esquire, for Oatlands, and The National Trust for Historic Preservation;
- Matthew D. Pethybridge, Esquire; and Jennifer Shirey, Esquire; for Kincaid Forest Homeowners Association;
- Charles W. Hundley, Esquire; and Catharine T. Slater, Esquire, for Dewayne Brock Davenport;
- John E. Rinaldi, Esquire; and Wendy A. Alexander, Esquire; for Centex Homes, The Reserve at Rokeby Farm Property Owners Association and WCI Mid-Atlantic U.S. Region, Inc.;
- Randolph A. Sutliff, Esquire, for Shenstone/Dry Mill; and,
- Wayne N. Smith, Esquire; and Arlen K. Bolstad, Esquire, for Commission Staff.

The Company presented its case through the following witnesses: John D. Smatlak, David M. Burnam, James Cox, Richard L. LaVigne, Cyril Welter, John Bailey, Donald Koonce, Don Hoover, Dr. Philip Cole, and Richard L. Parli.

Loudoun County presented the testimony of Charles Yudd, Peter Lanzalotta, Benjamin W. Mays, and Gerry Sheerin.

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<sup>40</sup>For Woodlea Manor only. (Tr. 727).

The Town of Leesburg presented the testimony of David A. Schlissel.

The Park Authority presented the testimony of Thaddeus E. Haffner, Paul McCray, Charles Simmons, and Katherine Rudacille.

Save the Trail presented the testimony of Barbara Notar.

Scenic Loudoun Legal Defense presented the testimony of John C. Bergstrom, Jack Rinker, Kathryn King, Eugene Scheel,<sup>41</sup> James Ruffner, and Allan Sylvester (and twelve landowners).

Shenstone sponsored the testimony of fifteen landowners and co-sponsored the testimony of Charles Simmons. The fifteen landowners are Jerry Harold, Farshad Zahiri, Nassar Zahiri, James Presgraves, Jonathan Miller, Sheila Mackey, J. Jeffrey Schoch, Hang Nguyen, Donald Kuney, Adam Dilks, Wakil Darmani, Robert Stewart, Raymond Borup, Donald Woellert, and Mark Thomas.

Kincaid Forest sponsored the testimony of Steven D. Clauson and Amelie D. Hammond.<sup>42</sup>

Centex Homes presented the testimony of David A. Rettew.

Davenport presented the testimony of Dewayne Brock Davenport.

Orme Farm and Cammack Brothers presented the testimony of W. Michael Lewis and Kenneth C. Strobl.

Oatlands presented the testimony of David Boyce and Elizabeth Merritt.<sup>43</sup>

Staff presented the testimony of Michael Martin.

Proofs of public notice were marked as Exhibit Numbers 18, 19, and 26 and entered into the record. Post-hearing briefs were filed on September 18, 2006. Post-hearing briefs from Save the Trail and the Town of Leesburg were accepted on September 25, and 26, 2006, respectively. A copy of the transcript of this proceeding is filed with this Report.

## **POSITION OF THE PARTIES**

### *Company*

The Company proposes to construct a 230 kV transmission line approximately 15.7 miles long from its existing Pleasant View Substation to the proposed Hamilton Substation to be located east of the town of Purcellville in Loudoun County, Virginia. The Company states this project is needed by the summer of 2008 to meet projected load growth in the Purcellville load area. Further,

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<sup>41</sup>Mr. Scheel testified on his own behalf as a public witness at the conclusion of the hearing.

<sup>42</sup>Tr. 2695; Ex. 57.

<sup>43</sup>Tr. 4136; Ex. 97.



the Company maintains the project is needed to prevent overloads on the distribution system and will support development of the transmission system in the area. The Company states the need for the proposed project is clear and no one is seriously challenging the need for the proposed transmission line. The Company maintains that the rapidly growing demand for electricity in Loudoun County is fueled by vast development in one of the fastest growing counties in the United States. Loudoun County has no generating units and is therefore dependent on transmission lines to supply its growing electric power needs.

The Company opposes underground construction of the proposed transmission line for several reasons: operational and reliability concerns and expense. Underground transmission lines are far more expensive than typical overhead lines. The Company points out that over ninety-nine percent of its transmission lines are constructed overhead. The Company argues that the advocates of an underground line have not performed the balanced and thorough analysis required for approval of a transmission line route pursuant to § 56-46.1 of the Code of Virginia.

The Company recognizes that routing will be the primary issue in this case and states that it has gone to great lengths in an attempt to balance the competing interests. The Company points out that its proposed E7 route was developed after extensive meetings with local officials and the public. The Company states in its application that it did not propose the use of the W&OD Trail west of Leesburg due to local opposition. The Company acknowledges the potential impact of its proposed E7 route, but reiterates that it is willing to take measures to mitigate those impacts. It is the Company's position that the proposed transmission line is needed to provide reliable electric service to the homes and businesses of Loudoun County.<sup>44</sup>

#### *Centex Homes*

Centex Homes supports the modified D route as the best alternative among the routes proposed because it uses existing right-of-way, thereby minimizing the cost and the time in which DVP can complete the line. Centex Homes states the modified D route also minimizes environmental impact in that it utilizes an area that is already impacted by development. Centex Homes maintains that the ratepayers in other parts of the Commonwealth should not be burdened with the purchase of new right-of-way when existing right-of-way is currently available. Centex Homes opposes the Company's proposed E7 route because of its impact on scenic and historic resources. Further, Centex Homes points out that it is virtually impossible to accurately predict the cost of purchasing all of the right-of-way necessary to place the lines along the proposed E7 route.

Centex Homes states that DVP purchased the land that is now the W&OD Trail for the sole purpose of providing right-of-way for a power line to serve Northern Virginia. Centex Homes maintains this purchase was a wise decision as was the decision to sell the Trail property to the Park Authority while retaining an easement for the express purpose of placing power lines on the Trail property. Centex Homes maintains that while the W&OD Trail is the most direct route and utilizes existing right-of-way, the Company's proposed E7 route was "merely the result of Dominion giving in to popular and political pressure."<sup>45</sup>

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<sup>44</sup>Tr. 1034-1040.

<sup>45</sup>Centex Homes Brief at 4, 5.

### *Scenic Loudoun*

Scenic Loudoun urges the Commission to select the modified D route for this proposed transmission line for several reasons. First, the modified D route primarily uses existing right-of-way and is relatively direct and therefore less costly. Second, because the modified D route is primarily situated along a busy multi-lane highway, it would have relatively little impact on the scenic beauty and quietude of Leesburg and Loudoun County. Finally, Scenic Loudoun maintains that the modified D route serves a fundamental public interest: it does not require the taking of private property for fourteen miles of new right-of-way.<sup>46</sup>

Scenic Loudoun points out that DVP purchased the W&OD Railroad corridor as right-of-way for transmission lines in 1968 with ratepayers' money for the express purpose of placing electric facilities along the Trail to meet current and future needs for power. Scenic Loudoun maintains that there would be no W&OD Trail if DVP had not sold the land to the Park Authority while retaining its right to use the land for future electric infrastructure. Furthermore, Scenic Loudoun points out that DVP purchased the site for the proposed Hamilton Substation precisely because of its location next to the W&OD Trail. Scenic Loudoun states that every property owner along the Trail including the Park Authority and the Town of Leesburg has had actual or constructive notice of the transmission line easement for almost forty years. By contrast, Scenic Loudoun maintains that property owners along the Company's proposed E7 route received their first notice regarding the proposed transmission line in 2005.<sup>47</sup>

Scenic Loudoun states there are transmission lines through every community east of Leesburg along thirty miles of the W&OD Trail. These transmission lines pass through, or are adjacent to, urban and suburban commercial districts, schoolyards, downtown historic districts, parks, community centers, and residential neighborhoods. Scenic Loudoun further points out that new residential communities are being constructed adjacent to these existing transmission lines and that studies prepared for the Virginia Department of Conservation show that the existing overhead utility lines do not have a significant negative impact on typical users of the Trail.<sup>48</sup>

### *Oatlands, Inc. and The National Trust for Historic Preservation ("Oatlands")*

Oatlands urges the Commission to approve partial or full placement of the Pleasant View-Hamilton transmission line underground and/or approve the modified D route with mitigation measures necessary to reasonably minimize impacts on the W&OD Trail and other resources. Oatlands maintains that by concentrating the impact of the transmission line in areas of Loudoun County that already have been subject to substantial modern development, the Commission will further local, state, and federal policies by maximizing preservation of the scenic and historic resources that make the Journey Through Hallowed Ground Corridor so important to the nation as a whole.

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<sup>46</sup>Scenic Loudoun Brief at 6.

<sup>47</sup>*Id.* at 4.

<sup>48</sup>*Id.*

If, however, the Commission were to approve the Company's proposed E7 route, Oatlands argues that the Commission should condition its approval on DVP obtaining approval from the Virginia Department of Historic Resources ("DHR") for a specific plan to avoid or minimize impact on historic resources such as Rokeby, Oatlands, and property within the Goose Creek Historic District. Since the Goose Creek Historic District expansion has been so recent,<sup>49</sup> Oatlands maintains that DHR should be given an opportunity to evaluate how the transmission line would affect the expansion's eligibility for the National Register for Historic Places.<sup>50</sup>

*Dewayne Brock Davenport ("Davenport")*

Davenport asserts that DVP changed its position concerning the use of existing right-of-way along the W&OD Trail because of public criticism.<sup>51</sup> Specifically Davenport states: "It appears that Dominion buckled under political pressure and declined to utilize existing rights-of-way as a proposed route but instead sought an alternative route that would avoid the W&OD Trail."<sup>52</sup> Davenport notes that when DVP hired Burns & McDonnell, the Trail was not among the options Burns & McDonnell considered before the application was filed.

Davenport maintains that the W&OD Trail would benefit from the placement of the transmission lines along the Trail because Dominion would manage the vegetation, preserving trees that are appealing and removing unwanted species such as the Ailanthus. Davenport points out that Mr. McCray, the Park director of operations, described the Ailanthus as an invasive tree not native to the area, which grows unchecked. Davenport further points out that Donald Hoover, DVP's forestry expert, testified that the Park Authority likes to have invasive species taken out, and one of the worst is the Ailanthus.

Davenport supports the modified D route as the best alternative because it maximizes the use of existing right-of-way and mitigates environmental and scenic concerns by preserving most of the existing tree canopy along the W&OD Trail. Davenport maintains that modifications achieved by segments B.1 through B.5 provide further mitigation of the impact to homes along the Trail. Moreover, Davenport states that the modified D route would minimize the taking of private property.<sup>53</sup>

*Woodlea Manor*

Woodlea Manor points out that § 56-46.1 of the Code of Virginia requires that, if a transmission line is proposed on a route other than an existing right-of-way, "the public service company shall provide adequate evidence that existing rights-of-way cannot adequately serve the needs of the company."<sup>54</sup> Woodlea Manor further argues that § 56-259 C of the Code of Virginia requires that the feasibility of locating the proposed transmission line along the W&OD Trail must be considered prior to acquiring any new right-of-way. Woodlea Manor emphasizes that the

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<sup>49</sup>The Goose Creek Historic District expansion was approved by local officials after a public hearing in September of 2005. Ex. No. 164, Attachment B.

<sup>50</sup>Oatlands Brief at 52, 53.

<sup>51</sup>Davenport Brief at 5.

<sup>52</sup>*Id.* at 16.

<sup>53</sup>*Id.* at 17.

<sup>54</sup>Va. Code § 56-46.1 C.

Company, in its application, clearly stated that “[t]his project can be constructed entirely within the existing W&OD right-of-way, and utilizing this right-of-way would eliminate any real estate costs for the project.”<sup>55</sup>

Woodlea Manor contends that the primary argument for not using the Trail is that trees and scenery along the Trail will be lost. While Woodlea Manor concedes this fact, it argues that trees and scenery will be lost along whatever route is chosen for this transmission line. Woodlea Manor argues that using the Trail has several advantages: it utilizes existing right-of-way, minimizes the taking of private property, is the most direct route, and substantially reduces the overall cost of the project.

Finally, Woodlea Manor asserts that equitable considerations must also be kept in mind. It has been known for decades that DVP owned an easement along the Trail. Anyone who bought property along the Trail was, at a minimum, on record notice of the easement and the potential for placement of a power line there. Conversely, Woodlea Manor maintains that property owners along the Company’s proposed E7 route were blindsided, having no advance notice that someday a transmission line could be erected on or near their land.

#### *Orme Farm and Cammack Brothers*

Orme Farm and Cammack Brothers argue that the Company has failed to provide adequate evidence that existing right-of-way cannot adequately serve the needs of the Company. Moreover, Orme Farm and Cammack Brothers maintain that “existing right-of-way” does not necessarily mean only right-of-way possessed by the Company. It can be any public right-of-way, such as right-of-way owned by VDOT, that is available for the building of transmission facilities.<sup>56</sup> Orme Farm and Cammack Brothers argue that, having failed to prove that existing right-of-way cannot adequately serve the Company’s needs, the route that utilizes the most existing right-of-way should be approved.<sup>57</sup>

Orme Farm and Cammack Brothers therefore support the modified D route. However, if the Commission decides to approve the Company’s proposed E7 route, Orme Farm and Cammack Brothers request that either of Mr. Strobl’s alternatives be incorporated.<sup>58</sup>

#### *Park Authority*

The Park Authority set the stage for this case by accurately explaining that the respondents can be divided into two camps: (1) those who advocate the southern routes and (2) those who advocate the northern routes. The respondents advocating the northern routes include Scenic Loudoun, Leesburg Luxury Homes, Orme Farm/Cammack Brothers, Centex Homes, WCI Mid-Atlantic, The Reserve at Rokeby Farm Property Owners Association, Davenport, Oatlands, and The National Trust for Historic Preservation. The respondents advocating the southern routes include

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<sup>55</sup> Application Volume I, at 51.

<sup>56</sup> Orme Farm/Cammack Brothers Brief at 3.

<sup>57</sup> *Id.* at 7.

<sup>58</sup> *Id.* at 18.

Kincaid Forest, Save the Trail, Town of Leesburg, Beauregard Estates Homeowners Association, Northern Virginia Regional Park Authority, Loudoun County, and Shenstone/Dry Mill.

The Park Authority correctly points out that there is no statutory requirement to select the least costly route. Instead, the statutory requirements mandate that environmental impact be reasonably minimized. Furthermore, the Park Authority correctly points out that none of the pertinent statutes require the use of existing right-of-way. Instead, the utility seeking approval is required to provide adequate evidence that existing right-of-way cannot adequately serve the utility's needs. The Park Authority maintains that if existing rights-of-way are available, the Commission must consider whether using them will reasonably minimize environmental impacts.

The Park Authority argues that the area surrounding the W&OD Trail has changed so dramatically over the past 38 years since the corridor was acquired, that the advantages of using the existing right-of-way are far outweighed by the disadvantages. The Park Authority maintains that preservation of scenic assets, trees, historic assets, recreational assets, and park land; the impact on residential homeowners; and safety and engineering feasibility all support the use of a southern route. Even when the modified D route is considered, which removes three-quarters of the W&OD Trail from consideration, the Park Authority asserts that the environmental impacts of a northern route still far outweigh the environmental impacts of a southern route.<sup>59</sup> The Park Authority contends that these changes negate the standard arguments in favor of using existing rights-of-way to lessen the impact of new transmission lines.

The Park Authority maintains that the Trail should not be used for this transmission line because nearby property owners did not have notice of the easement, the character of the property has changed since the easement was acquired, and the vigor and nature of the public outcry support the conclusion that the changes to the property are too great to justify use of the easement. Specifically, the Park Authority states that the former railroad bed has been returned to its natural state and a nationally recognized recreational park has been established. The historical aspects of the W&OD Railroad have been preserved to the extent that the Trail is eligible for a National Historic Register designation.<sup>60</sup>

The Park Authority argues that an overall comparison of the northern and southern routes shows the following:

- Only the northern routes impact a unique, nationally recognized park and recreational resource enjoyed by large numbers of visitors;
- Only the northern routes impact hundreds of residences;
- Only the northern routes require extensive consultation with VDOT;
- Only the northern routes pose a significant threat to historical assets;
- Only the northern routes require construction within a rigidly defined 100-foot corridor that is ill-suited for heavy construction equipment; and

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<sup>59</sup>Park Authority Brief at 14.

<sup>60</sup>Ex. No. 98, at 5.

- Only the northern routes force homeowners to bear the full brunt of transmission lines practically in their backyards while precluding them from receiving compensation.<sup>61</sup>

Further, the Park Authority argues that the environmental impacts are considerably reduced on the southern routes because of the following:

- A considerable portion of the southern routes is slated for development or contains private property posted with no trespassing signs, which means that the existing scenic assets will be disrupted or be off limits to the general public;
- The southern routes impact far fewer residences, with many of the parcels being vacant land without a permanent resident;
- The southern routes raise no concerns for VDOT;
- Mitigation measures are feasible to avoid physically impacting historical assets;
- The terrain permits far greater opportunities for mitigation; and
- All property owners truly impacted by the southern routes would receive full compensation for the use of their property.<sup>62</sup>

The Park Authority disputes the assertion by Staff and the southern advocates that a route within the W&OD Trail would minimize construction and maintenance costs.<sup>63</sup> The Park Authority argues these claims are based on mistaken assumptions in that when the construction constraints and cost of danger trees<sup>64</sup> are properly analyzed, it becomes clear that construction costs of the northern routes would be higher than construction costs for the southern routes.<sup>65</sup>

The Park Authority claims that, in terms of preserving historical assets, the W&OD Trail is the worst possible site for the proposed transmission line. The Park Authority asserts that a construction project of this magnitude cannot be accomplished without impacting the integrity of the historical aspects of the Trail. Further, the Park Authority maintains that even if it is possible to mitigate some of the construction impacts, these mitigation measures will inevitably increase costs. The Park Authority argues that the northern routes are ill-suited for transmission line construction and that mitigation measures, if possible, would require considerable effort. The Park Authority states that such mitigation efforts are not needed along the southern routes.<sup>66</sup>

While acknowledging that the modified D route does reduce the impact to the W&OD Trail by removing three-quarters of the Trail between Pleasant View Substation and the proposed Hamilton Substation from consideration, the Park Authority nevertheless maintains that the modified D route should be rejected for two principal reasons. First, the modified D route

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<sup>61</sup>Park Authority Brief at 25.

<sup>62</sup>Id. at 25, 26.

<sup>63</sup>Ex. No. 145, at 46.

<sup>64</sup>Danger trees are adjacent to but not on the right-of-way and could damage the line or its structures. The Company purchases the rights to remove danger trees and this cost is factored into the cost of right-of-way.

<sup>65</sup>Park Authority Brief at 31, 32.

<sup>66</sup>Id. at 46.

drastically increases the negative impacts of the D routes by incorporating Trail segment B, which is 2.6 miles long. Second, the Park Authority asserts that the modified D route does not reduce the cost of building the line but, in fact, increases the cost. The Park Authority further concludes that DVP will spend extra money for a route that does not give it the advantage of establishing a corridor for a future line from Middleburg to Hamilton. The Park Authority advocates approval of the proposed E7 route, however, if the modified D route is approved, the Park Authority prefers routing the line through Digges Valley (segments 22, 23, 25, 49, 49a, and 10a), thereby avoiding the Trail altogether.<sup>67</sup>

The Park Authority rejects the Company's suggested mitigation measures, arguing that there will be unavoidable impacts either to the Trail or the Shenstone/Dry Mill property owners. While acknowledging DVP's engineering skills in constructing the proposed line in or around Trail B, the Park Authority nonetheless maintains that "there are plenty of questions about how much the Park will suffer and how much the homeowners will suffer."<sup>68</sup> The Park Authority states that its experience with much less drastic transmission line construction projects has been dismal. A project of this magnitude will, according to the Park Authority, destroy the unique character of this portion of the W&OD Trail to the detriment of Trail users and homeowners alike.<sup>69</sup>

#### *Shenstone/Dry Mill*

The Shenstone/Dry Mill respondents maintain the economic cost and social/environmental impacts of an alignment through Dry Mill Valley along segments 46 prime and Trail B prime of the modified D route are unequivocally the most costly in every regard, rendering it inappropriate for placement of the proposed transmission line. In particular, the Shenstone/Dry Mill respondents point out that the modified D route has a far higher residential impact than the Company's proposed E7 route. The Shenstone/Dry Mill respondents claim that the Trail B prime segment has the greatest length of line through forest land while the E7 route offers attractive use of floodplain which cannot be used for development. Moreover, the Shenstone/Dry Mill respondents state that the Trail B prime segment has the highest visibility rating of any of the routes considered.

Furthermore, the Shenstone/Dry Mill respondents claim that the cost of the modified D route is understated because the proposed 145-foot towers are more expensive than standard height towers and that the Company underestimated the cost of the high value lots along the Trail and the residual damage to expensive homes located in the Shenstone subdivision.<sup>70</sup>

Shenstone/Dry Mill respondents claim that the Trail B prime segment of the modified D route is an inappropriate route for the placement of this transmission line. The Shenstone Dry/Mill respondents state that DVP, a Company on which the Commission consistently relies for its experience and ability to generate data, has recommended the E7 route and the Shenstone Dry/Mill respondents support DVP's analysis and its recommendation.<sup>71</sup>

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<sup>67</sup>Park Authority Brief at 55, 56, 58.

<sup>68</sup>*Id.* at 59.

<sup>69</sup>*Id.* at 59, 60.

<sup>70</sup>Shenstone/Dry Mill Brief at 4,5.

<sup>71</sup>*Id.* at 10.

### *Save the Trail*

Save the Trail opposes construction of the proposed transmission line within the W&OD Trail right-of-way as inappropriate under the restrictions in the existing deed reserving the right-of-way to DVP and inconsistent with the criteria set forth in § 56-46.1 of the Code of Virginia. Save the Trail takes no position with regard to the need for the proposed transmission line, but instead addresses the adequacy of existing right-of-way, environmental impact, and appropriate mitigation.<sup>72</sup>

Save the Trail questions whether the easement rights reserved in the 1978 deed from DVP to the Park Authority<sup>73</sup> actually constitute an “existing right-of-way.” The deed provides in pertinent part:

The Company reserves unto itself and to its successors all its electric facilities now located on the said land, and further reserves to itself and its successors, the perpetual right, privilege and easement of right-of-way to lay, construct, operate and maintain one or more lines of poles, towers, structures, cables, conduits, pipes and mains. . . (hereinafter referred to as the “Facilities”), for the purpose of transmitting or distributing electric power. . .

Save the Trail maintains that the exercise of these reserved easements is not unrestricted because the Company is required to “exercise due care and caution and make every reasonable effort to avoid interfering with the use of said lands for public park purposes.”<sup>74</sup> Further, Save the Trail points out that the Company may not locate Facilities “so as to unreasonably preclude the establishment and maintenance by the [Park] Authority of public hiking, biking and bridle trails having a minimum width of twenty-five (25) feet.”<sup>75</sup>

Save the Trail explains that when the Company sold the property to the Park Authority it was already encumbered by transmission lines along its eastern length and no significant addition of transmission lines has occurred since that time. Save the Trail states that for approximately 20 years the public has had uninterrupted access to the park and the western portion of the Trail has become the “crown jewel” of the park. Therefore, Save the Trail concludes that the Company’s consideration and rejection of the use of the existing rights-of-way along any portion of the W&OD Trail was proper and appropriate.

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<sup>72</sup>Save the Trail Brief at 4, 5.

<sup>73</sup>Ex. No. 14.

<sup>74</sup>Id. at 5.

<sup>75</sup>Id. at 4, 5.



### *Town of Leesburg*

The Town of Leesburg requests that, if the Commission finds the Company's proposed 230 kV transmission line in Loudoun County is needed, the approval be conditioned on the following:

- The use of existing right-of-way cannot adequately serve the needs of the Company;
- The use of the W&OD Trail is inconsistent with the Town's Comprehensive Plan, will not reasonably minimize adverse impact on the scenic assets, historic districts and the environment, including but not limited to the human environment, of the area concerned, and otherwise does not meet the requirements of the Code of Virginia;
- The approved route should not utilize the W&OD [Trail] west of the Pleasant View Substation, whether in an overhead or underground configuration;
- The D routes, including. . . the modified D [route] in all its variations,. . . will not reasonably minimize adverse impact on scenic assets, historic districts and environment, . . .;
- Construction of [an overhead] transmission line. . . within the municipal limits of the Town of Leesburg will not reasonably minimize adverse impact on the scenic assets, historic districts and the environment, . . .;
- The [Company's] proposed E7 route is viable, as it avoids the Town of Leesburg, the W&OD Trail, and the D routes, will meet the Company's needs, and with mitigation. . . can reasonably minimize adverse impact on scenic assets, historic districts and environment, . . .;
- If overhead construction is approved, and the [proposed] E7 route is selected, the route should be adjusted as [recommended] by Company [witness Welter]. . .; and,
- As adjusted, [the proposed] E7 route is the route that best reflects the public interest, meets statutory criteria for approval, achieves the best balance between and among the interests of the Company, its customers, the environment, and the public, including but not limited to the Town of Leesburg and its citizens. . . .<sup>76</sup>

## **DISCUSSION**

### ***Description of the Proposed Project***

The proposed 230 kV transmission line will connect the existing Pleasant View Substation to the proposed 230-34.5 kV Hamilton Substation. The proposed Hamilton Substation will initially contain one 230-34.5 kV transformer and three 34.5 kV distribution circuits. The new distribution circuits will connect to the existing lines in the area.

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<sup>76</sup>Leesburg Brief at 50, 51.

The proposed transmission line will be a single-circuit 230 kV design and operation voltage with a transfer capability of 1047 MVA. The new line will be constructed on single shaft steel pole structures with a vertical conductor arrangement supporting three twin bundled 636 ACSR (Aluminum Conductor Steel Reinforced) phase conductors in a vertical configuration.<sup>77</sup> The twin bundled 636 conductors provide maximum capacity, reduce noise and are the standard conductor used in a 230 kV transmission line.<sup>78</sup>

The average pole height would be approximately 110 to 120 feet, depending on specific design and terrain. The foundation would be concrete, four feet wide at the base. The width at the cross arm would be thirteen feet and average span length would be 700 feet.

The project would require various right-of-way widths. For example, if the line paralleled Route 7 and the Route 7 Bypass, of the total 80 feet of right-of-way required,<sup>79</sup> approximately 20 to 40 feet of existing VDOT right-of-way could be shared, subject to VDOT approval. The final design would determine the actual amount of new right-of-way required.

The Company is requesting 100 feet of new right-of-way for its proposed E7 and alternate routes from Route 15 west to the Hamilton Substation so a future circuit from the Middleburg Substation could be accommodated. The Company is requesting an 80-foot right-of-way for its proposed E7 route east of Route 15 because the line would remain a single circuit in these areas.<sup>80</sup> Staggered arm configurations with two phases on one side of the pole and a single phase on the other side of the pole would require 100 feet of right-of-way. This configuration was mentioned as a mitigation measure in the area of Oatlands because the pole would be 100 feet tall, thereby reducing the typical height of the pole by 20 feet. The 145-foot tall towers proposed as mitigation along the W&OD Trail to preserve the tree cover would also require a 100-foot right-of-way because of the height of the pole.

### *Need*

David M. Burnam, an engineer in DVP's Distribution Planning Department, testified that the proposed transmission line is necessary to provide reliable electric service to the Purcellville load area<sup>81</sup> in western Loudoun County. The Purcellville load area is currently served from four 34.5 kV distribution circuits, identified by their source substations and distance from Purcellville below:

#718 Millville, WV	12.5 miles
#395 Middleburg, Va.	13.5 miles
#665 Lovettsville, Va.	15.5 miles
#666 Lovettsville, Va.	16.0 miles.

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<sup>77</sup>Tr. 5081.

<sup>78</sup>Tr. 5377; Ex. No. 38, at 2.

<sup>79</sup>Ex. No. 39.

<sup>80</sup>Welter study at 1-3.

<sup>81</sup>The Purcellville load area encompasses the Towns of Purcellville, Hamilton, Round Hill, Lovettsville and the surrounding region.

Mr. Burnam explained that the Purcellville load area has experienced a dramatic 11 percent annual electrical load growth in the past six years and this growth is expected to continue into the foreseeable future. By comparison, the load growth for the entire Northern Virginia load area was 1.81 percent in the same time period of 1998 to 2004.<sup>82</sup>

Mr. Burnam stated that, under normal load conditions (non-contingency), the load will nearly exceed the capacity of the distribution circuits by the summer of 2011. Under a contingency situation (*i.e.*, the loss of one of the four circuits due to an outage),<sup>83</sup> the load will nearly exceed the capacity of the remaining three circuits in 2007, and will exceed that capacity by the summer of 2008. Mr. Burnam pointed out that at summer peak load conditions, by the summer of 2008 if there were an outage on one of the circuits, customers would be without power until the cause of the outage was repaired.<sup>84</sup> Therefore, Mr. Burnam concluded that the proposed transmission line and substation must be operational prior to the summer of 2008 at the latest.<sup>85</sup>

Further, Mr. Burnam explained that as the load on the four distribution circuits increases, the voltage the system is capable of delivering to customers is reduced due to several factors. One of these factors is the considerable distance of the Purcellville load area from existing substations. Installing voltage regulation equipment will help somewhat; however, low voltage will result in the improper operation of customers' equipment.

Mr. Burnam testified that the proposed Pleasant View-Hamilton 230 kV line and the Hamilton Substation will solve these problems by providing sufficient capacity to cover contingency scenarios. Mr. Burnam stated that the proposed transmission line and substation will accommodate future growth and reduce load on the existing distribution lines.

Staff pointed out in its testimony addressing the issue of need that the Company has planned several improvements to its distribution circuits serving the Purcellville load area. However, due to the explosive growth occurring in western Loudoun County, these improvements will be inadequate to meet the increasing demand for electricity.

Staff noted the Company has conducted an analysis of alternative transmission configurations to the proposed Pleasant View-Hamilton transmission line.<sup>86</sup> Staff stated that none of the alternative configurations results in a reasonable or acceptable network configuration. Staff further pointed out that generation is not a solution either. According to Staff, the problem in the Purcellville load area is a delivery problem and there is no regional shortage of generation.<sup>87</sup> In fact, Staff pointed out that even if there were local generation, an improved delivery system to the Purcellville load area would still be required.

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<sup>82</sup>Load growth in the entire Dominion system from 1998 to 2004 was 1.13 percent.

<sup>83</sup>It is standard electric utility practice to assess the reliability of a load area's delivery system under the assumption that the most critical component of the system has failed. This is referred to as a single contingency analysis. For a distribution circuit this would be its substation source.

<sup>84</sup>Summer loads are used because electrical equipment has lower thermal ratings in summer due to higher ambient temperatures. Ex. No. 22, at 5.

<sup>85</sup>Id. at 6.

<sup>86</sup>Company Application Appendix at 11.

<sup>87</sup>Ex. No. 145, at 15.

Staff noted that historically, the Purcellville load area has experienced poor reliability with its electric service. Staff recently has received several complaints from customers served by a portion of the Lovettsville Circuit #665. The customers complained that their appliances have been damaged on more than one occasion by overvoltages, when a conductor overheated and sagged into another circuit. Staff believes the Company's proposed transmission line and substation will provide substantial improvement to the Purcellville load area and resolve customer complaints pertaining to voltage problems.<sup>88</sup>

### *Finding*

Unbridled growth in western Loudoun County is driving the need for the Company's proposed transmission line and substation. According to the U.S. Census Bureau, Loudoun County was the fastest growing county in the United States in 2004. Loudoun County is still one of the fastest growing counties in the country today and there is no indication that this growth will abate in the foreseeable future.

With the steadily increasing electrical demand, reliability problems in the Purcellville load area will only become more pronounced unless substantial improvements are made. The Company has made and will continue to make improvements to the distribution system providing service to the Purcellville load area, but these are only temporary solutions.

The Company has evaluated all reasonable alternatives to its proposed transmission line and substation, and has concluded that no alternative or combination of alternatives is adequate to meet the identified need. Staff has reviewed the Company's analysis and concurs with the Company's conclusions. None of the parties take issue with the conclusion that there is a need for the proposed transmission line and substation.

I find there is an undeniable need for the Company's proposed Pleasant View-Hamilton transmission line and Hamilton Substation. Although additional distribution circuits can be built and distribution improvements made, a transmission line provides far more capacity, reliability, and efficiency. I further find that no alternative or combination of alternatives to the proposed transmission line and substation offers a reasonable solution to the explosive growth in electric demand in the Purcellville area. In response to the question regarding DVP's constructing the proposed transmission line for profit outside its service territory, this line is a radial line and, as such, could not be used to export power. The sole purpose of this proposed transmission line is to reinforce the Company's transmission grid within its service territory.

### *EMF*

Company witness Donald Koonce explained that electric fields are created by the voltage that is present on a conductor. Magnetic fields are created only when current is flowing in the conductor. Mr. Koonce used an example of an extension cord that is plugged into a wall outlet, but has no attachment on the other end. Because the extension cord is plugged into the outlet which is a source of electricity, there is an electric field because there is voltage in the cord. There is no magnetic field, however, because the current is not moving in the cord. If a lamp is plugged into

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<sup>88</sup>Id. at 12.

the extension cord, the current begins to flow and both an electric field and a magnetic field are now present. With a transmission line, the magnetic field varies in accordance with the demand placed on the line.<sup>89</sup> The higher the demand, the higher the magnetic field and vice versa. The values provided by Company witness Cox in his prefiled testimony represent the magnetic fields that would be produced if the transmission line were operating at its maximum load.<sup>90</sup>

Mr. Koonce prepared Exhibit Nos. 152 and 162 which show the electric and magnetic fields produced by various overhead and underground installations under consideration in this case and how rapidly they dissipate. These exhibits and Mr. Cox's figures represent fields experienced during absolute maximum loading and not what would be experienced in a typical day's operation.<sup>91</sup> One interesting aspect of EMF shown by the exhibit is the importance of phase spacing. The closer the cables are to each other, the lower the electromagnetic field because the fields from the opposing phases cancel out each other.<sup>92</sup> However, the problem with placing the phases close together is that increased heating causes the voltage to decrease, thereby decreasing the line capacity.

In response to public witnesses who believe that burying the lines underground would eliminate the electric and magnetic fields, Mr. Koonce stated that notion is "wishful thinking" and "technically incorrect." While the electric field is cancelled out with pipe-type or HPFF cables because the outer conductor is grounded, the magnetic fields associated with underground cables can be significantly higher than the field of an overhead line depending on how the cables are installed. With underground cables, the magnetic field depends on the configuration of the cables and, again as with overhead lines, distance from the source.<sup>93</sup>

Company witness Cox testified that the calculated magnetic fields that would occur under maximum expected loading conditions at the edge of the right-of-way would range from 107 milligauss ("mG") to 332.91 mG and from 74.88 mG to 332.91 mG depending on the phase arrangement. Moreover, as shown in Exhibit Nos. 152 and 162, magnetic field strength diminishes rapidly as distance from the source increases. The decrease is proportional to the inverse square of the distance. For example, a magnetic field strength of 10 mG at the edge of the right-of-way would decrease to 2.5 mG at a point 50 feet outside the right-of-way.<sup>94</sup> In comparison, a hair dryer produces 300 mG or more; a copy machine can produce 90 mG or more depending on the circumstances and operation of these devices.

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<sup>89</sup>Tr. 5164, 5165.

<sup>90</sup>Ex. No. 38, at 3.

<sup>91</sup>Tr. 5207, 5208.

<sup>92</sup>Tr. 5171.

<sup>93</sup>Tr. 5206, 5207; Ex. No. 151, at 24-27.

<sup>94</sup>Ex. Nos. 152 and 162.

As previously noted in this Report, statements by public witnesses emphasized the importance of the EMF issue as it pertains to the proposed transmission line. DVP presented the testimony of Philip Cole, MD, professor *emeritus* of Epidemiology at the University of Alabama at Birmingham who provided the following testimony:

The question of EMF as a possible cause of cancer in human beings has been investigated by epidemiologists in more than 200 studies, now spanning 27 years. There also have been hundreds of animal and molecular studies reported. In addition, innumerable reviews of the question have been prepared both by academic and regulatory bodies. Despite this extensive research, EMF is not considered to be a human carcinogen. No scientific or regulatory body, including the International Agency for Research on Cancer, the cancer research arm of the World Health Organization, has categorized EMF as a carcinogen for human beings. There is no precedent for an agent that has received such intense investigation and that has failed to be recognized as a carcinogen – subsequently to become so recognized.<sup>95</sup>

Dr. Cole further compared EMF studies to early tobacco studies. Dr. Cole stated the original tobacco studies showed an immediate and strong correlation between smoking and related health risks, and that pattern never changed. With each succeeding study, the relationship between cigarette smoking and lung cancer became ever stronger and more persuasive. From the first tobacco studies around 1950 to a universal acceptance of the relationship between cigarette smoking and lung cancer took about five years, culminating with the U.S. Surgeon General's report on smoking and health in 1964.

In contrast, Dr. Cole testified that the early showing of a relationship between EMF and childhood leukemia started out at a high level of relative risk and has steadily decreased to a relative risk or no excess risk at all. This happened over a period of fifteen to twenty years. This research area is now twenty-five years old. Once the studies showed no excess risk at all of EMF, that level of risk has been maintained. Dr. Cole portrayed the pattern as completely opposite from the tobacco studies. To his knowledge, there is currently no major study of the relationship between EMF and human health and none is planned.<sup>96</sup>

At the public hearing in Leesburg on February 8, 2006, Patrick Sloyan noted there had been no input from the Virginia Department of Health (“VDOH”) regarding EMF in this proceeding. Upon investigation, it was determined that the Virginia Senate passed Senate Joint Resolution No. 126 in 1985 requesting the VDOH, in consultation with the Commission, to monitor ongoing research on the health and safety effects of high voltage electric transmission lines and to report annually its findings. In 1993, the General Assembly passed Senate Joint Resolution No. 278 requesting the VDOH and the Commission to continue their annual reporting and monitoring activities. However, with the passage of Senate Bill No. 379 in the 1998 session,<sup>97</sup> the General Assembly found that, “after 13 years of monitoring and reporting, there no longer exists the need

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<sup>95</sup>Ex. No. 120, at 2.

<sup>96</sup>Tr. 4505-4507.

<sup>97</sup>1998 Va. Acts ch. 764.

for such an ongoing project.” Senate Bill No. 379 terminated the monitoring and reporting requirements contained in Senate Joint Resolution No. 126.

*Finding*

The evidence pertaining to EMF is based on epidemiological studies which are founded on statistics, not science. It is certainly understandable that people, especially those with children or with existing health issues, do not want to live anywhere near an electric transmission line. However, the truth is that all of us are exposed to far more EMF in our daily lives than would be encountered from the proposed transmission line. Magnetic fields dissipate rapidly as distance from the source increases. Therefore, EMF from our computers, vehicles, and household appliances such as microwaves, are far stronger than any residual EMF that would be emitted from the proposed transmission line. I find there is no evidence in this proceeding, scientific or otherwise, to conclude that electric and/or magnetic fields that would be emitted from the proposed transmission line would pose a risk or hazard to human health.

*Virginia Department of Environmental Quality (“DEQ”)*

The Company, in Volume II of its application, included a report from DEQ regarding the study area for the proposed transmission facilities. DEQ contacted the appropriate state agencies and received input from them regarding the Company’s proposed project. In pertinent part, DEQ found no endangered species, plant or animal, in the study area.

The Company, in its rebuttal testimony, expressed concern regarding conflicting standards on herbicide use for right-of-way maintenance. Specifically, DEQ recommended that no herbicides be used within 100 feet of any wetland or stream. The Company contends that this recommendation unduly restricts the use of herbicides that have been approved by the federal Environmental Protection Agency (“EPA”) for use up to the edge of standing water. Comments from the Virginia Department of Game and Inland Fisheries (“DGIF”) and the DEQ Division of Water Quality (“DWQ”) apparently conflicted in this regard and the Company sought clarification from DGIF. The Company states that, after further review, DGIF has agreed to the use of herbicides in or near water based upon their EPA approval and the Company has agreed to attempt to limit the use of such herbicides to the extent feasible. The Company requests that herbicides not be restricted by distance from wetlands or streams as proposed in the DEQ report.

*Finding*

I find that the Company’s request is reasonable and follows current practice. Therefore, the Company should be allowed to follow federal EPA guidelines in its application of herbicides for right-of-way maintenance.

### ***Route Selection Process***

The Commission follows the guidelines set forth by the Federal Energy Regulatory Commission (“FERC”)<sup>98</sup> in evaluating the routing for transmission line projects. These guidelines, as applicable to the present case are as follows:

- Existing rights-of-way should be given priority;
- Where practical, rights-of-way should avoid sites listed on the National Register of Historic Places;
- When government land is involved, the applicant should contact the agencies early in the planning process; and
- Secondary uses of right-of-way that are consistent with the safe maintenance and operation of facilities are permitted.

Following the FERC Guidelines, the Company began its route selection process by reviewing its existing rights-of-way. As previously noted, the Company has existing right-of-way along the W&OD Trail which could completely accommodate the proposed transmission line and thus eliminate acquisition costs for the project. This right-of-way was purchased with the intent to install transmission lines, distribution lines, and substations on the property. The Company has previously installed overhead electric facilities on the W&OD Trail in the Counties of Arlington, Fairfax, and Loudoun up to the Pleasant View Substation near Leesburg. Much of the remaining fifteen miles of the W&OD Trail in Loudoun County has distribution facilities either on or adjacent to the Trail.

The Company’s initial focus for siting this transmission line was on the W&OD Trail and the Route 7 Bypass around Leesburg.<sup>99</sup>

In April of 2004, the Company invited officials from the localities within the study area to participate in a working group to discuss placing new transmission facilities on the W&OD Trail. The Company’s intent was to inform the localities of the need for the proposed facility and the use of the Trail for its construction. Further, if sections of the Trail were to be avoided, then the officials could provide insight into alternate corridors. Local representatives pressed the Company to change the project from overhead to underground and to follow the Route 7 corridor. Based on this input, the Company began consideration of the Route 7 corridor as an alternative route.

Organizations involved with and localities along the W&OD Trail expressed unified opposition to the project along the W&OD Trail. The towns/cities of Leesburg, Purcellville, Hamilton, Hillsboro, Vienna, Falls Church, and Arlington; the Counties of Loudoun and Fairfax; the Park Authority; and the Northern Virginia Regional Commission all formally opposed placing the project on the W&OD Trail corridor.

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<sup>98</sup>Guidelines for the protection of Natural, Historic, Scenic, and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities adopted by FERC in Order No. 414 issued November 27, 1970.

<sup>99</sup>Tr. 2312, 2313.



As a result of this opposition, the Company expanded its study area south and west of the Leesburg Airport and retained the services of Burns & McDonnell to develop alternatives to the south, prepare impact analyses, and develop a recommended route for the proposed project. In the far northern part of the study area, Burns & McDonnell found obstacles such as a regional park and residential developments that would preclude locating the line in that area. Further, the Potomac River and Maryland were also limiting factors in expanding the study area to the north.<sup>100</sup>

Burns & McDonnell initially identified 47 alternatives that were grouped into five families of routes designated “A” through “E.” The A, B and D routes impacted the Route 7 corridor, so the Company initiated a series of meetings with VDOT. VDOT expressed its concern with the use of the Route 7 corridor between the Route 9 and Route 7 interchange and Leesburg due to plans for future highway expansion. Based on this information in addition to high residential impact and open space easements, the Company eliminated the A and B routes from consideration.

The Company explained in its application that overall, the D routes showed higher residential impact than the C and E routes, but the D routes were the best remaining alternatives that paralleled portions of Route 7, which was supported by the localities. In addition, the D routes were attractive to the Company because the Company believed it could acquire right-of-way in a timely manner for construction of the line. The “C” routes had low residential impact but were problematic because of open space easements.<sup>101</sup> The open space easements were of concern because of the time needed to obtain right-of-way through these easements.<sup>102</sup>

The Company states that a lengthy court process may be necessary to obtain right-of-way through open space easements even with Commission approval. Therefore, the uncertainties regarding open space easements on the C and E routes were a negative factor in choosing a preferred corridor. In particular, the Company points out that open space easements on the E routes are located in two new residential subdivisions, Rokeby Hamlet and Red Cedar West. The C routes are surrounded by open space easements in the Woodburn area. Avoiding these easements to the west was not possible because they adjoin the Goose Creek Historical District; therefore, the Company determined there were no reasonable alternative routings around the easements and Historic District in the vicinity of the C routes.<sup>103</sup>

Burns & McDonnell next investigated alternatives around Rokeby Hamlet and Red Cedar West. Alternatives to the west were developed and designated as routes E7 and E8. Routes E7 and E8 are rural in nature with a resulting low residential impact compared to other routes. A comparison of the D routes and E routes showed that the D routes parallel significant portions of existing right-of-way and do not cross any open space easements; however, the D routes have higher residential impact and most of this impact occurs along the existing right-of-way. In comparison, the E routes have no homes within 100 feet of the corridor. The D routes are generally shorter; 12 and 13 miles for D2 and D3 respectively versus 15.7 and 15.3 miles for E7 and D8 respectively.

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<sup>100</sup>Tr. 2313.

<sup>101</sup>Tr. 2337-2338.

<sup>102</sup>Tr. 2339.

<sup>103</sup>The Company did however include routes C5 and C6 as alternative routes in its application.

The Company settled on route E7 as its proposed route because of the low residential impact and avoidance of the W&OD Trail, open space easements, and historical districts.<sup>104</sup> Further, the Company determined there was minimal impact on Virginia Scenic Byways and VDOT highways. Route E7 does utilize some existing right-of-way. Routes E8, C5, C6, D2, and D3 are retained in the application as alternate routes.

### ***Company Proposed E7 Route***<sup>105</sup>

The Company's proposed E7 route would move the proposed transmission line south of Leesburg and away from the W&OD Trail. The major impact of the E7 route is on historic areas and scenic roads. While it is correct that the E7 route has low housing impacts, many of the homeowners impacted by the E7 route are residents who have opposed the prolific growth in Loudoun County and have attempted to preserve some of the county's original beauty by means of open space easements. The many twists and turns of the E7 route are a result of the efforts of Burns & McDonnell and the Company to avoid these open space easements, which the Company describes as "problematic." The following is a description of some of the impacts of the E7 route.

#### **(1) Creekside LLC**

Hobie Mitchell, president of Lansdowne Community Development and its subsidiary, Creekside LLC ("Creekside"), appeared as a public witness and filed comments in opposition to segment 37 of the Company's proposed E7 route because it cuts through the proposed Creekside development.<sup>106</sup> Mr. Mitchell explained that Creekside was formed in February of 2004 for the purpose of acquiring, developing, and managing a planned community just south of Leesburg. The Creekside development will include over 2,100 homes; 150,000 feet of retail development; 240,000 feet of office development; several community parks; two community centers; and an elementary school site. Mr. Mitchell stated that the Creekside development is currently in the process of being rezoned by Loudoun County. Mr. Mitchell testified that segment 37 of the Company's proposed E7 route cuts through the planned residential, commercial, and elementary school site.<sup>107</sup>

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<sup>104</sup>The Goose Creek Historic District has subsequently been enlarged to envelop Segment 23 of the Company's preferred E7 route.

<sup>105</sup>Using Exhibit 28 as a reference, the Company's proposed E7 route proceeds south along existing right-of-way from the Pleasant View Substation (segment 38), then turns west crossing the Dulles Greenway and Hogeland Mill Road (segments 37 and 34a). Following the Sycolin Creek floodplain, the E7 route turns east along Evergreen Mills Road to avoid an open space easement and then turns west again across Gleedsville Road and Route 15 (segment 54). The proposed E7 route turns north west of Route 15 and crosses the Mount Gilead Road and then turns northeast crossing Route 704 and Foxfield Lane (segments 52 and 51). The Company's adjustment to avoid the Perry open space easement would straighten the corner between segments 51 and 10c. (Ex. No. 161, Attachment CJW 4). The proposed E7 route would again turn north and west crossing Woodburn Road (segments 10c and 50). From the point the proposed E7 route intersects with segment 49a of the D routes, the proposed E7 route turns west crossing Canby Road (segments 49 and 250). From its intersection with segment 24 of the C routes, the proposed E7 route turns north, crossing Digges Valley Road, Gable Farm Lane and Colonial Highway until its intersection with Route 7 (segments 23, 22). At its intersection with Route 7, the proposed E7 route turns west paralleling Route 7 and the W&OD Trail (segments 6, 4 and 1; Trail A) into the proposed Hamilton Substation site adjacent to the W&OD Trail.

<sup>106</sup>Tr. 569.

<sup>107</sup>Tr. 571, 572.

Mr. Mitchell contended that the Company has continued to claim incorrectly that its preferred E7 route would impact only 38 homes. Mr. Mitchell stated that, while it is true that Creekside is not in the final stages of rezoning approval, it is misleading for DVP to fail to mention the impact of its proposed route on the planned community of Creekside. Mr. Mitchell maintained that he has met with DVP representatives twice, once in Richmond and once in Northern Virginia, to explain the impact on the proposed Creekside development, all to no avail. Mr. Mitchell claimed that the Company's proposed route would impact hundreds of planned homes with a price range from the mid-\$400,000 to homes starting at \$700,000.<sup>108</sup> Mr. Mitchell stated that he has tried to work with DVP and has offered alternatives, but the Company has been unreceptive.<sup>109</sup>

## **(2) Dunlyn, LLC**

Bryan Brooks, representing Dunlyn, LLC ("Dunlyn") of which he is a partner, testified that Dunlyn owns 340 acres located at 20381 Evergreen Mill Road in Leesburg. The Dunlyn property is bounded by Evergreen Mill Road on the north and Gleedsville Road on the south. Mr. Brooks stated that the Company's proposed E7 route runs 1.15 miles through Dunlyn's property. Mr. Brooks testified that the Dunlyn property has been approved as a subdivision by Loudoun County and will contain estate homes located on six-acre (average) lots with an average price of \$1.5 million.<sup>110</sup> Mr. Brooks further explained that half of the planned 688 homes in the Dunlyn subdivision would be located within 500 feet of the Company's proposed E7 route.<sup>111</sup>

Mr. Brooks supports placing the proposed transmission line underground and he strenuously opposes the Company's proposed overhead route. Mr. Brooks claims that Dunlyn's market analysis showed that the Company's proposed E7 route would devalue its property by 60 percent, or \$15 million. Mr. Brooks stated that, while he would donate his land for an underground easement, he will fight the Company with all of his ability if it tries to impose its overhead preferred route.<sup>112</sup>

## **(3) Oatlands Plantation and National Trust for Historic Preservation**

Oatlands Plantation ("Oatlands") is a 200-year old National Historic Landmark located five miles south of Leesburg and owned by The National Trust for Historic Preservation ("National Trust"). The centerpiece of the property is a federalist-style mansion that was built in 1804, but Oatlands is also a designated National Historic Landmark for its historic, architectural, and archaeological importance. Oatlands was awarded a Commonwealth of Virginia designation as the "Oatlands Historic District" and contains approximately 1,015 acres which extend north of the intersection of Routes 15 and 651. The Oatlands Historic District, which was listed on the National Register of Historic Places, includes Oatlands Plantation, Little Oatlands, Oatlands Mill site, Church of Our Savior, and Mountain Gap School, all of which have historic significance.<sup>113</sup> Oatlands was also awarded a Loudoun County designation as the "Oatlands Agricultural District" which encompasses Oatlands along with ten private landowners whose properties adjoin Oatlands'

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<sup>108</sup>Tr. 577.

<sup>109</sup>Tr. 573, 579.

<sup>110</sup>Tr. 665.

<sup>111</sup>Tr. 667.

<sup>112</sup>Tr. 669, 670.

<sup>113</sup>Ex. No. 97, at 3.

northern boundaries. Oatlands is Loudoun County's most heavily visited historic site, with 40,000 to 65,000 visitors annually.<sup>114</sup> Although the Company's proposed E7 route does not touch the Oatlands properties, segments 54 and 52 impact the viewshed from Oatlands.

Oatlands is located on Route 15, a Scenic Byway, which is part of a 175-mile corridor from Monticello, Virginia, to Gettysburg, Pennsylvania, designated as the "Journey Through Hallowed Ground Corridor." The Journey Through Hallowed Ground Corridor is one of the most significant and endangered historic regions in the United States. The 175-mile corridor, which runs east of the Shenandoah Valley from Monticello along the Route 15 Scenic Byway in Loudoun County and on to Harper's Ferry and Gettysburg, features an unmatched continuum of significant historic sites in a rural setting dating from the Colonial period through the Civil War. Specifically, the Journey Through Hallowed Ground Corridor includes the largest concentration of Civil War battlefields in the country, as well as the homes of eight U.S. Presidents, two World Heritage Sites, forty-seven Historic Districts, thirteen National Historic Landmarks, and thirteen national parks. The Journey Through Hallowed Ground Corridor includes the greatest concentration of rural historic districts in the nation, and more than 7,000 buildings listed on the National Register of Historic Places.

Abigail DeLashmutt, a representative of the Journey Through Hallowed Ground Partnership ("Partnership") explained that the Partnership is a non-profit organization dedicated to raising national and local awareness of the unparalleled history that occurred along Route 15 between Monticello and Gettysburg. Ms. DeLashmutt stated that heritage and agricultural tourism are the fastest growing segments of the tourism industry in the United States today. Moreover, Ms. DeLashmutt maintained that the landscape surrounding historic landmarks is as important as the historic buildings themselves.<sup>115</sup>

Oatlands engaged the services of Jack Rinker, a civil engineer, who performed a balloon simulation on December 14, 2005, by locating a series of eight balloons at the same height as the transmission line towers (120 feet) along two segments of the Company's proposed E7 route. Mr. Rinker positioned the tower locations using a map of the proposed route found on the Company's website. Once on the ground, he used a hand-held GPS instrument to determine the locations. Once assembled, the balloons were photographed and a scaled model of the transmission line was integrated into the photographs using the balloons shown in the picture to control the height and location of the simulated structures. The photographs were then altered to show a 100-foot wide clearing of trees along the easement.<sup>116</sup> These photographs are attached to Mr. Rinker's prefiled testimony, Exhibit Number 85. Oatlands claims that visitors to the plantation would have a direct and sustained view of the towers and transmission line, especially from the main drive and the fields on the north side of the main drive where many events are held.<sup>117</sup>

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<sup>114</sup>Id. at 2.

<sup>115</sup>Tr. 134-138.

<sup>116</sup>Unless staggered arm towers are used to reduce the height of the poles (which would require a 100-foot easement), the easement for 120-foot single-circuit structures would be 80 feet.

<sup>117</sup>Oatlands Brief at 19.

Elizabeth Merritt, deputy general counsel for the National Trust testified that the Route 15 corridor represents the historic backbone of America and is threatened by encroaching suburban sprawl. As a result of this encroachment, the National Trust has included the Journey Through Hallowed Ground Corridor on the Trust's 2005 List of America's Eleven Most Endangered Historic Places.

Ms. Merritt explained that the Company's proposed E7 route would cut through the heart of the Journey Through Hallowed Ground Corridor and would have an adverse impact on the historic character of this corridor. Ms. Merritt explained that, under the National Historic Preservation Act, an "adverse impact" occurs when a proposed project may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register.<sup>118</sup>

Ms. Merritt maintained that § 56-46.1 B of the Code of Virginia, which requires the Commission to take into consideration the adverse impact of a transmission line route on scenic assets, historic districts, and the environment of the area concerned, has the same intent as the federal statute.

Ms. Merritt testified that the construction of an overhead powerline using a series of 120-foot towers in such close proximity to Oatlands would be totally incompatible with what the National Trust has accomplished over the years to preserve the historic and pristine character of the area in and around Oatlands. Ms. Merritt maintained that preservation of the viewshed from Oatlands and the Oatlands Historic District is of the highest concern for the National Trust.

In addition to Oatlands, Ms. Merritt expressed concern for the impact of the Company's proposed E7 route on Rokeby, which Ms. Merritt describes as an extremely significant historic property. Ms. Merritt noted that Rokeby dates back to 1757 and is also listed in the National Register of Historic Places. Ms. Merritt stated that the powerline would be highly visible from Rokeby, which is located even closer to the proposed route than Oatlands.<sup>119</sup>

#### **(4) Rokeby and Rokeby Hamlet Subdivision**

Centex Homes sponsored the testimony of Dave Rettew, director of community development for Centex Homes. Mr. Rettew testified that Rokeby Hamlet was developed as a rural hamlet, a type of clustered rural residential development designated by the Loudoun County Zoning Ordinances. Mr. Rettew explained that clustering the residences preserves greater amounts of contiguous open space. Centex Homes owns 51 of the 86 residential lots and two of the four conservancy lots located within the Rokeby Hamlet subdivision. Mr. Rettew stated that the lots are fully developed and the roads are paved. Home construction is underway on many of the lots.

Mr. Rettew explained that, when the property was subdivided, Centex Homes owned the four parent parcels from which the residential hamlet lots, conservancy lots, and open space areas were created. Once the residential hamlet lots were created, the remaining conservancy lots and open space parcels were placed into a permanent open space easement. This open space easement

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<sup>118</sup>*Id.* at 4, 5; 36 C.F.R. § 800.5 (a) (1).

<sup>119</sup>Ex. No. 97, at 7, 8.

restricts the removal of trees, shrubs, or other vegetation, and prohibits use of the property that is detrimental or adverse to water conservation, erosion control, soil conservation, or wildlife habitat (subject to the primary uses of farming and forestry). Moreover, Mr. Rettew stated that the open space easement prohibits any building, facility, or other structure that is not used or designed in connection with farming or residential use purposes.

Segments 31, 32a, 34, and 44 (C routes) cross the open space easements of the Rokeby Hamlet subdivision.

Mr. Rettew further testified that Rokeby house, which dates back to 1757 and is listed on both the National and Virginia Register of Historic Places, lies approximately 3,500 feet from the Company's proposed E7 route. Rokeby house, according to Mr. Rettew, is known to have housed the original Declaration of Independence, the American Constitution, and other valuable American documents during the War of 1812. Mr. Rettew also noted that Routes 15 and 704 are designated Virginia Byways and are adjacent to the Rokeby property.<sup>120</sup>

The E and C routes cross Route 15 where it has been designated a scenic byway and where the rural topography would make the lines especially prominent and difficult to mitigate. For instance, the proposed E7 route approaches Route 15 across a pasture on the east side. The west side of Route 15 at this juncture is a steep ridge that is part of Hogback Mountain. The line would be prominently visible as it ascends this steep slope, not only from Route 15, but also from Oatlands. The C5 route would run immediately adjacent to the southern border of Rokeby Manor, while the C6 route would provide a buffer of only about 1,000 feet. The E7 and E8 routes would provide only about 2,000 feet between the transmission line and Rokeby Manor.<sup>121</sup>

Company witness John Bailey testified that the Company's proposed E7 route would be almost two miles from Oatlands and that, at that distance, the visual effects would be minimal. Mr. Bailey also testified that it would be possible to mitigate the view of the line by using staggered arm tower configurations to reduce the height from 120 to 100 feet as the transmission line runs from east to west across Route 15, before crossing the ridge at Route 15 and turning north toward the Goose Creek Historic District and the proposed Hamilton Substation.<sup>122</sup> The staggered arm configuration, however, would not reduce the visibility of the line as it crosses the ridge along Route 15, and this configuration would require an additional 20 feet of easement (100 feet total) that would have to be condemned.

Advocates of the Company's southern routes point out that the viewshed from Oatlands and Rokeby is already impacted by two communications towers located approximately 3,000 feet east of the Oatlands property line. The National Trust vigorously opposed the construction of the two towers and points out that their existence is no excuse to further denigrate the viewshed with the proposed transmission line.<sup>123</sup>

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<sup>120</sup>Ex. No. 105, at 1, 3, 4, 5, 9, and 10.

<sup>121</sup>Application, volume 1 at 56, 112; Ex. 28; Ex. 159, at 30; Tr. 2522-23, 2631, 2635-36.

<sup>122</sup>Ex. No. 159, at 34; Tr. 5673.

<sup>123</sup>Tr. 4113, 4133.

While Oatlands and the National Trust support an underground solution to the case, they maintain that the modified D route would reasonably minimize the adverse impacts on historic resources as well as satisfy other statutory criteria. Oatlands and the National Trust assert that the modified D route satisfies legal requirements and public policy priorities by concentrating the effects of the transmission line in areas of Loudoun County that have already been subject to significant modern development. Oatlands and the National Trust state that the modified D route would avoid irreparable injury to the unique scenic and historic resources that make the Journey Through Hallowed Ground Corridor so significant to the Commonwealth and to the nation as a whole.

### **(5) Fairfarm**

Mark Dunn, counsel for Fairfarm, Incorporated<sup>124</sup> (“Fairfarm”) spoke as a public witness and filed comments in this proceeding. I viewed Fairfarm and the other sites discussed herein on a site visit in March of 2006.<sup>125</sup> Fairfarm is located four miles south of Leesburg on Route 15. The original farmhouse, known as the Peter Carr House (and also known as Shadow Mountain Farm), dates to the 1780’s and has been submitted for placement on the State Historic Register and the National Historic Register as an example of colonial revival architecture.<sup>126</sup> The farmhouse is currently assessed at a fair market value of \$1,422,000. The remainder of the farm is subdivided into fifty-three lots, each consisting of approximately ten acres. The total fair market value of these lots is \$10,216,100 according to the 2005 Loudoun County tax assessments.<sup>127</sup>

Mr. Dunn explained that segment 52 of the Company’s proposed E7 route traverses this property twice, once in an east-west direction and again in a north-south direction. Segment 53 of alternate route E8 traverses this property in a northerly direction beginning at the intersection of segments 53 and 31. Segment 31 of alternate routes C5 and C6 traverses the property in an east-west direction.<sup>128</sup> Mr. Dunn testified that routes E8, C5, and C6 would come extremely close to the historic farmhouse.<sup>129</sup> Mr. Dunn asserts that it would be an irremediable error to mar the setting of one of the county’s architectural landmarks.<sup>130</sup>

Mr. Dunn maintained that alternate routes D2 or D3 are the best options among the routes proposed by the Company for several reasons. Routes D2 and D3 are the shortest in distance of all the proposed options. Routes D2 and D3 follow Route 7 for a significant distance, thereby reducing any additional environmental disruption in this already heavily impacted area. Further, routes D2 and D3 would utilize existing right-of-way along the W&OD Trail, thereby reducing condemnation costs. Simply stated, Mr. Dunn concluded that the D2 and D3 alternatives are the shortest and most economical choices for the proposed transmission line.

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<sup>124</sup>Mr. Dunn testified that the corporation is a closely-held family corporation and that members of the family still live in the farmhouse. Tr. 561.

<sup>125</sup>In all, I made four trips to view the different options discussed in this Report.

<sup>126</sup>Tr. 558, 559.

<sup>127</sup>Comments at 2; Tr. 565.

<sup>128</sup>Comments at 2.

<sup>129</sup>Tr. 561.

<sup>130</sup>Comments at 3.

If, however, the Company's proposed route E7 is adopted, Mr. Dunn requests that the route be shifted to follow the perimeter of the Fairfarm property.<sup>131</sup> Mr. Dunn stated that the Fairfarm development has been subdivided with the intent of creating an integrated community focused on a natural watercourse running through the property. The wholeness of the planned community would be destroyed, according to Mr. Dunn, if the Company's proposed E7 route is approved, because it cuts through the middle of the property.<sup>132</sup> Mr. Dunn stated that if the proposed E7 route, which traverses the Fairfarm property is approved, the cost to the Company would be substantial.<sup>133</sup>

## **(6) Foxfield**

Foxfield is impacted by segments 51 and 10C of the Company's proposed E7 route. On July 12, 2006, the Company proffered a realignment of its proposed E7 route at Foxfield. The realignment was designed by the Company when it realized that Mr. Perry had an open space easement on his property.<sup>134</sup>

Hugh Perry,<sup>135</sup> a resident of Foxfield, testified that the Company's proposed route would cross his property and an old growth forest behind his house. Mr. Perry stated that his twenty-acre property contains a pond, a stream and wetlands, in addition to an Indian burial mound. Mr. Perry placed an open space easement on his property over ten years ago.<sup>136</sup>

John Rocca, a Tuscaroran Indian, born and raised in Loudoun County as his ancestors before him, testified about the importance of the land along Route 15 and its history with his people. Mr. Rocca explained that the current Route 15 was a very sacred road that was traveled by Indians for many thousands of years. Mr. Rocca stated that one of three very sacred burial mounds is located on Mr. Perry's property in Foxfield, beside Route 15. Mr. Rocca recounted that his grandfather would take him to this and other sacred sites to pay respect to the spirits of their people. Mr. Rocca stated that the sacred burial mound located in Foxfield is in the path of the Company's proposed route. Mr. Rocca very strongly urged that another route be chosen so that this sacred burial mound is not desecrated.<sup>137</sup>

Alex Green, a resident of Foxfield, explained that Foxfield is a subdivision of almost a dozen ten- to fifteen-acre lots with a combination of open fields and old growth forest. Mr. Green stated that Foxfield is located on rolling terrain that includes a heavily wooded ridge on which his lot is located. The Company's proposed E7 route would cross the open fields between Mr. Perry's home and the adjoining home, go through the forest between Foxfield and Mr. Davenport's property and cross over a heavily wooded ridge.<sup>138</sup> Mr. Green stated that when Foxfield was formed over thirty years ago, all utilities were placed underground. Mr. Green maintained there will be significant environmental damage to Foxfield if the Company's proposed E7 route is

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<sup>131</sup>Comments at 5.

<sup>132</sup>Tr. 562, 563.

<sup>133</sup>Tr. 566.

<sup>134</sup>Tr. 5545, 5613; Ex. No. 161, ex. CJW-4.

<sup>135</sup>Mr. Perry is a horticulturist, and environmentalist and a wildlife habitat designer. Tr. 172.

<sup>136</sup>Tr. 167, 168, 172.

<sup>137</sup>Tr. 783-786.

<sup>138</sup>Numerous public witnesses testified that aircraft approaching the Leesburg Airport fly over this ridge at a very low altitude when they approach or leave the airport. Tr. 795, 808, 809.



approved. In particular, the E7 route would require clear cutting over a mile of old hardwood growth forest that is such a scenic asset to Foxfield residents.<sup>139</sup>

Mr. Green expressed concern over the severe economic impact that will be caused by depreciation to homes in Foxfield. Mr. Green estimates the depreciation at \$100,000 for each Foxfield resident if the Company's proposed E7 route is approved. Mr. Green asserted that the financial impact of the E7 route is much greater than admitted by DVP. Mr. Green claimed that final right-of-way costs for the E7 route will be more nearly in line with Mr. Ruffner's estimate of \$23 million plus \$6 million in other costs for those properties directly crossed by the power line. Mr. Green argues that the Company has underestimated the cost of its proposed E7 route and overestimated the cost of placing its proposed transmission line underground. Mr. Green strongly advocates an underground placement of the proposed transmission line.<sup>140</sup>

Mr. Green expressed concern that the Company had eliminated the most cost-effective route, the W&OD Trail, from consideration. Mr. Green stated that it is disheartening and outrageous that DVP would seize and condemn property when it already owns a shorter and perfectly usable right-of-way for its proposed transmission line.<sup>141</sup>

Bob Krivanek, who lives at 40371 Foxfield Lane began by explaining that Foxfield is a thirty-year old subdivision consisting of eleven ten- to fifteen-acre lots. Mr. Krivanek stated that the residents of Foxfield are adamantly opposed to the Company's proposed E7 route because of the devastating impact it will have on their community and because other less expensive, less intrusive alternatives exist. Mr. Krivanek explained that the E7 route directly intersects two of the eleven lots and passes with a few feet of four other lots.<sup>142</sup>

Mr. Krivanek argued that DVP favored one set of interests over others when it eliminated the W&OD Trail from consideration as a potential route. Mr. Krivanek maintained that DVP has failed to act in the public interest because it is advocating the confiscation of private property when it has failed to show that existing rights-of-way cannot accommodate the proposed transmission line.<sup>143</sup> Mr. Krivanek advocates placing the proposed transmission line underground using the shortest route available.<sup>144</sup>

## **(7) Goose Creek Historic District and Diggs Valley**

The 10,000-acre Goose Creek Historic District preserves the remnants of the largest Quaker settlement in Virginia, and contains some of the most unspoiled pastoral beauty of any rural area in Virginia. The largest and oldest of Loudoun County's historic districts, it is characterized by simple, elegant architecture incorporating local fieldstone and brick, as well as substantial open agricultural lands and historic roadways. The original district was placed on the National Register of Historic Places in 1982. Loudoun County and the Virginia Department of Historic Resources

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<sup>139</sup>Tr. 787, 788.

<sup>140</sup>Tr. 790, 797-799.

<sup>141</sup>Tr. 796, 797.

<sup>142</sup>Tr. 807, 808.

<sup>143</sup>Tr. 812, 813, 817.

<sup>144</sup>Tr. 818, 819.

recently approved a 571-acre eastward expansion of the district, which encompasses structures from the earliest historic settlement of the Goose Creek area and lands that were included in the initial land grant from Lord Fairfax to the most prominent Quaker family involved in the settlement of Loudoun County. The Virginia Department of Historic Resources and the State Review Board have issued a preliminary recommendation deeming the recent expansion eligible for nomination to the Virginia Landmarks Register and the National Register of Historic Places.<sup>145</sup>

The recent 571-acre expansion of the Goose Creek Historic District encompasses segment 23 that is common to all of the Company's southern routes, including the Company's proposed E7 route.<sup>146</sup> Segment 23 crosses approximately one-half mile of the expanded Goose Creek Historic District, including family farms that have been in operation for more than 200 years.<sup>147</sup> The Harris family farm in Digges Valley<sup>148</sup> is a good example. This farm is adjacent to the Goose Creek Historic District and offers sweeping vistas that contain structures more than 100 years old and in some instances more than 200 hundred years old. The transmission line would be highly visible as it crosses Digges Valley and there are no means of mitigating this view of the line.

### ***Modified D Route***<sup>149</sup>

The modified D route represents an early attempt of the Company to use its existing right-of-way and co-locate with VDOT right-of-way around Leesburg. The modified D route attempts to mitigate the impact to the W&OD Trail by moving the line off the trail property where possible and preserving the tree canopy enjoyed by park users. Of the eleven miles of right-of-way owned by the Company along the Trail, the modified D route would utilize less than two miles along the Trail B section.<sup>150</sup> This could be accomplished by paralleling the north side of the Trail and co-locating with an existing distribution line that affords an additional thirty feet of existing right-of-way separate from the 100-foot Trail right-of-way.

The Park Authority and Save the Trail paint a picture of devastation to the Trail if the modified D route is approved.<sup>151</sup> This is simply not the case. If the modified D route is approved with alternatives B.1 and B.5 incorporated, very few poles actually would be located on Park Authority property. Segment B.1 begins immediately where segment 46 prime intersects with the Trail. It proceeds south for approximately 1,103 feet and is located on the Trail property. The

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<sup>145</sup>Ex. Nos. 163, 164.

<sup>146</sup>Tr. 2431.

<sup>147</sup>Tr. 5739-40.

<sup>148</sup>Segments 49, 25, 23 and 22 of the E7 route traverse Digges Valley. Digges Valley consists of rural, undeveloped farmland either bordering on or included within the Goose Creek Historic District.

<sup>149</sup>The modified D route is based on the Company's D3 route except the modified D route would use Trail B instead of crossing Digges Valley and the Goose Creek Historic District. Using Exhibit 28 as a reference, the modified D route proceeds northeast along existing right-of-way (segment 20), then turns northwest on Market Street (segment 19), then south and west along the Route 7 Bypass (segments 16, 14, 12a, 48, 13, and 11 prime). It then proceeds northwest parallel to the W&OD Trail (Trail B) through Shenstone. Just south of the Route 7 and Route 9 interchange, the modified D route turns northwest from the W&OD Trail until it intersects with Route 7 (segment 46 prime). It then parallels Route 7 westward (segments 7 or 8) and proceeds to the proposed Hamilton Substation utilizing the same route segments common to the E7 route and all other proposed alternative routes.

<sup>150</sup>The Park Authority does not object to the Company's segment 1, common to all routes, which parallels and crosses the Trail to enter the proposed Hamilton Substation site.

<sup>151</sup>Tr. 3008.

existing canopy on the Trail at this point is sparse and open, and with the use of 145-foot poles, many of the existing trees could be saved. During the July 21 site visit, Mr. Hoover, the Company's forester, pointed out that most of the trees at this point were *Ailanthus*, an undesirable invasive species which the Park Authority would want taken out.<sup>152</sup> Segment B.1 would require the placement of three or four poles on Park Authority property, but with the further use of Trail B prime, no additional poles would be placed on Park Authority property.<sup>153</sup>

Option B.1 would come within 100 feet of a rental house owned by Stephen Hertz.<sup>154</sup> Mr. Hertz was aware of the DVP right-of-way on the Trail and made improvements to the rental property with the expectation that a transmission line would some day be located on the Trail. Mr. Hertz's residence is located behind the rental house, farther from the Trail, and has an excellent tree buffer. Mr. Hertz was very much opposed to B.2 as the worst of all the options pertaining to his property. Mr. Hertz stated that he would rather have the rental house taken (condemned) than have the B.2 option adopted.<sup>155</sup>

From the end of option B.1, the modified D route would follow an existing distribution line with thirty feet of existing right-of-way on the northeast side of the Trail, but approximately 20 to 30 feet off the Trail property.<sup>156</sup> This distribution line and its existing right-of-way could be incorporated into the modified D route and the distribution line placed on the 230 kV poles. This would take the proposed line off the Trail and still utilize existing right-of-way.

Moving south, the modified D route would encounter the Shenstone subdivision. Shenstone is a very new subdivision consisting of homes with an average price of \$1.5 million located on three-acre lots. The homes nearest the Trail are very new and in many instances have just been completed. The best option here is to move the line closer to the Trail. While counsel for the Park Authority and Save the Trail focused on Segment B.3, which is a much less desirable option, fewer questions were asked about the alternative which would move the line closer to the Trail, but not on the center of the Trail, as it passes through Shenstone.<sup>157</sup>

Company witness Bailey testified that placing the line five to ten feet off the Trail property would significantly reduce the amount of tree clearing required and would eliminate condemnation of any homes.<sup>158</sup> Company witness Hoover added that by using 145-foot poles at the edge of the Trail property, tree trimming would be minimal.<sup>159</sup> Exhibit No. 70 provides a good depiction of what the proposed transmission line would look like if it were located just off the Trail boundary. As described by Mr. Bailey, the line would be located at the back of the Shenstone lots.<sup>160</sup> It should be remembered also that the modified D route still follows and utilizes the distribution line and its

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<sup>152</sup>Tr. 2921.

<sup>153</sup>Tr. 3017, 3019.

<sup>154</sup>Ex. No. 77.

<sup>155</sup>Tr. 4978-82.

<sup>156</sup>Tr. 5547.

<sup>157</sup>Ex. No. 49.

<sup>158</sup>Tr. 2926, 2927, 3022, 3024.

<sup>159</sup>Tr. 2928 – 2930, 3067; Ex. No. 70.

<sup>160</sup>Tr. 3298.

separate right-of-way as it enters Shenstone. The distribution line leaves the modified D route and crosses to the south of the Trail at lots 109 and 110 of Shenstone.<sup>161</sup>

The topography along the edge of the Shenstone lots bordering the Trail is level and some trees would have to be cut along the edge of the Trail property, but in most instances this would have little impact on the Trail canopy because the Trail has deep cuts at this location with most of the canopy growing out of the sides of these cuts. Mr. Hoover testified that most of the trees providing the canopy would be saved. Mr. Hoover stated that the trees that would be taken out are tall straight growing trees that would have little effect on the canopy.<sup>162</sup>

Option B.5 would have the line leave Shenstone at Eaglesham Court, cross the Trail and connect with segment 49a at its angle and proceed east connecting with segments 10a and 11. Option B.5 would avoid impact on lots 18, 19, and 24 of Shenstone and no pole structures would be placed on Trail property.<sup>163</sup> Dry Mill Road, a Scenic Byway, would be crossed at this point and the modified D route would connect with segment 49a of the D2 and D3 routes. Mr. Bailey testified that, in his discussions with Mr. Heltzel of VDOT, Mr. Heltzel was of the opinion that the D routes crossed Dry Mill Road in a reasonable fashion and that the line would have only a minimal intrusion on the Scenic Byway.<sup>164</sup>

The other challenging area involved with the modified D route would be in the area of Wage Drive and the Route 7 Bypass designated at segment 11 prime. The Company has met with VDOT engineers and is confident that VDOT approval can be obtained for this portion of the proposed line.<sup>165</sup> The Company has been able to reduce its pole requirements for crossing the Route 7 Bypass at this location from two poles to one pole. Mr. Bailey testified that DVP has worked with VDOT on that pole placement and that VDOT gave “every indication we can place that pole in this general location.”<sup>166</sup> Mr. Bailey also testified that the Company’s preliminary engineering plans could accommodate VDOT’s concerns regarding future improvements to the Sycolin Road intersection with the Route 7 Bypass.<sup>167</sup> As explained by Mr. Bailey, the Company would request from the chief VDOT engineer an exception to VDOT’s guidelines regarding limited access highways. This is standard practice according to Mr. Bailey and he foresees no problems.<sup>168</sup> On redirect, Mr. Bailey explained that it is standard practice to obtain permits from VDOT after the route has been approved.<sup>169</sup> Mr. Bailey further testified that DVP was working with VDOT to minimize impact on VDOT right-of-way and that VDOT recognizes the importance of this project and would work with DVP to develop the D routes.<sup>170</sup>

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<sup>161</sup>Ex. No. 54 is a diagram of the Shenstone lots.

<sup>162</sup>Tr. 3012.

<sup>163</sup>Tr. 3021, 3023.

<sup>164</sup>Tr. 5550.

<sup>165</sup>Tr. 2976, 2978.

<sup>166</sup>Tr. 5568.

<sup>167</sup>Tr. 5553.

<sup>168</sup>Tr. 2963, 2972, 2976, 2978.

<sup>169</sup>Tr. 3310.

<sup>170</sup>Tr. 5567.

Segment 11 prime is the primary segment which involves VDOT right-of-way issues. Mr. Hoover noted, in response to counsel for Leesburg's questions about tree clearing on the VDOT right-of-way, that recent clearing already had been performed on the right-of-way.<sup>171</sup> Company witness Cox explained that the line would be a single-circuit line at this point which would require 80 feet of right-of-way. As depicted by Exhibit No. 39, due to the use of some VDOT right-of-way, only 60 feet of new right-of-way would be required.<sup>172</sup> Segment 11 prime also accounts for much of the high residential impact attributed to the modified D route. There are several apartment buildings within 500 feet of the route and one within 100 feet. Mr. Welter counted each building as six residences although he admitted that he did not know whether all of the apartments were occupied.<sup>173</sup>

### **(1) Shenstone/Dry Mill**

The Shenstone/Dry Mill respondents filed a notice of participation on May 23, 2006, and are impacted by the modified D route. The Shenstone/Dry Mill respondents view the modified D route and the Company's proposed E7 route as a choice between Dry Mill Valley (modified D route) and Digges Valley (E7 route) because all of the Company's southern routes would traverse Digges Valley and only the modified D route would impact Dry Mill Valley. In particular, the Shenstone/Dry Mill respondents are impacted by Trail B prime and segment 46 prime of the modified D route.

Jatinder Khokhar and his family live on lot 109 (see Ex. No. 54) in Shenstone, and Mr. Khokhar's testimony is representative of the testimony given by the other Shenstone residents.<sup>174</sup> Mr. Khokhar and his family moved into their new home in January of 2006. Mr. Khokhar is very active in his Sikh Temple and his home is a gathering place for social and religious activities. Mr. Khokhar stated that his children bike along the W&OD Trail and that he and his wife go for long walks along the Trail. Mr. Khokhar explained that the feeling of closeness to nature provided by the Trail attracted them to this location. Mr. Khokhar emphasized that he and his family would be devastated if the transmission line is located along the Trail. Mr. Khokhar believes that all utility facilities should be placed underground so they do not impact nature.<sup>175</sup>

Jonathan Miller and his wife own thirty acres along Dry Mill Road that would be crossed by segment 46 prime of the modified D route. Mr. Miller is adamantly opposed to the modified D route as an overhead line, but stated that he would donate his land for an underground right-of-way. Mr. Miller explained that he is president of the largest equine horse rescue organization in America; he and his wife have a number of retired thoroughbreds on their farm. Mr. Miller explained that, if the line were placed on their property as proposed, a number of pine trees that provide a windbreak for the horses would be removed.<sup>176</sup>

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<sup>171</sup>Tr. 2980.

<sup>172</sup>Tr. 2989.

<sup>173</sup>Tr. 2993, 2994; Ex. No. 51.

<sup>174</sup>Ex. Nos. 130 - 143.

<sup>175</sup>Tr. 1395-1400.

<sup>176</sup>Tr. 4777, 4780.

## **(2) Virginia Department of Transportation (“VDOT”)**

All routes under consideration in this proceeding parallel Route 7 west of Leesburg for approximately two miles before terminating at the proposed Hamilton Substation<sup>177</sup> (segments 1 and 4). The D routes, including the modified D route, also impact the Route 7 Bypass south of Leesburg. Emmett Heltzel, an engineer for VDOT, worked with John Bailey of DVP to analyze these impacts and provide information and perspective regarding the impacts of the various routes on VDOT property.<sup>178</sup>

As with any property owner, VDOT would prefer the transmission line be located somewhere other than on its property. In that regard, Mr. Heltzel stated that VDOT preferred the southern C and E routes because they had the least impact on VDOT property.<sup>179</sup> Mr. Heltzel described the next preferred alternative as the “combination alternative” which would incorporate the Route 7 Bypass corridor<sup>180</sup> as utilized by the D routes, including the modified D route between the Route 7 intersection with Market Street on the southeast side of Leesburg to the intersection of Route 7 and Route 9 on the southwest side of Leesburg.

Mr. Heltzel testified on two occasions, in March and in July of 2006. Between his first and second testimony, John Bailey updated Mr. Heltzel regarding the modified D route and corresponding pole placements on the Route 7 Bypass if the modified D route were to be approved.<sup>181</sup> Mr. Heltzel testified that the impacts of the modified D route were similar to the impacts of the D routes in general.<sup>182</sup>

For VDOT, the most sensitive section of Route 7 is between its intersection with Route 9 and its intersection with Dry Mill Road on the west side of Leesburg. The modified D route avoids the sensitive section of Route 7 by utilizing Trail segment B. Mr. Heltzel stated that VDOT is concerned primarily about impacts to existing infrastructure that would preclude or impede future improvements and upgrades to Route 7 in the Leesburg vicinity. Mr. Heltzel stated that much of this work involving future improvements is in the early stages of conceptual planning and development, or at best in the preliminary engineering design phase.<sup>183</sup> Mr. Heltzel further advised that none of the overhead alternatives (as opposed to underground) would conflict with the planned Battlefield Parkway extension.<sup>184</sup>

Mr. Heltzel identified particular locations along the Route 7 Bypass designated for improvement. Route 7 in the Leesburg area is currently a four-lane divided highway. The future plans are to add an additional lane in each direction, but of particular importance is that these additional lanes are planned for the median or inside of the highway and not the outside of the existing lanes where the modified D route would be located. Mr. Heltzel explained that the wide, bifurcated median of the Route 7 Bypass in this vicinity provides the maximum amount of

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<sup>177</sup>Ex. No. 9, at 6; Tr. 4784.

<sup>178</sup>The map marked as Exhibit 28 will be helpful in following this discussion.

<sup>179</sup>Application Appendix at page 84.

<sup>180</sup>Ex. No. 9, at 2.

<sup>181</sup>Tr. 2983.

<sup>182</sup>Tr. 4783.

<sup>183</sup>Tr. 922.

<sup>184</sup>Tr. 933-934.

flexibility for future roadway improvements. Therefore, the location of the transmission line immediately adjacent to the limited access VDOT right-of-way, with overhang, might be accommodated without the implication of future conflicts.<sup>185</sup>

Mr. Heltzel stated that Route 7 from the intersection of Market Street west is designated as a limited access highway even though there are many at-grade intersections. Mr. Heltzel was not sure if the limited access designation extends as far west as the intersection with Route 9. The Fort Evans Road and Sycolin Road intersections with the Route 7 Bypass are controlled with stoplights and are at-grade intersections. The intersections of the Dulles Greenway and Route 15 with the Route 7 Bypass are limited access flyovers typical of a limited access highway.

Mr. Heltzel stated that the impacts to the existing Market Street interchange, other than the clearing of trees and vegetation, appear to be minimal. Based on future plans, Mr. Heltzel maintained that the configuration of this interchange will not change from its present layout.<sup>186</sup>

Mr. Heltzel identified two issues pertaining to the section of the Route 7 Bypass from Sycolin Road to the Dulles Greenway, a distance of approximately 3,500 feet. The first issue would involve the clearing of vegetation within and adjacent to the limited access right-of-way. The second issue would be the need for DVP to gain access to the future interchange infield areas to maintain the transmission facility. Mr. Heltzel explained that these impacts would be mitigated by DVP's agreement to provide restorative landscaping to prevent erosion and maintain aesthetics. All costs to clear and remove debris and stumps would be borne by DVP.

Mr. Hoover, the DVP forester, testified that vegetation removal should not be a problem. The crossing of the Route 7 Bypass at Wage Drive already has been cleared and if further clearing would be necessary, the Company would plant some desirable species acceptable to VDOT.<sup>187</sup> With regard to the issue of access, Mr. Bailey testified that access to the pole location near Wage Drive could be accomplished from an adjacent church property.<sup>188</sup>

Mr. Heltzel advised that the Sycolin Road intersection with Route 7 is scheduled for an upgrade that would include acceleration or deceleration lanes going to and from the exits.<sup>189</sup> With regard to future improvements to the Sycolin Road interchange, Mr. Heltzel stated that there is precedent for accommodating utility facilities in other locations within the Commonwealth.<sup>190</sup> For example, Mr. Heltzel stated that VDOT has permitted the location of cellular phone towers within interchange areas. Access through a gated entrance, as is common practice, would need to be provided off a connecting ramp road. DVP is also studying other means of access.<sup>191</sup> Mr. Heltzel concluded that DVP's concept for this location does not appear to hamper existing infrastructure.

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<sup>185</sup>Ex. No. 9, at 10.

<sup>186</sup>Id.

<sup>187</sup>Tr. 2980.

<sup>188</sup>Tr. 1244.

<sup>189</sup>Tr. 926, 927.

<sup>190</sup>Ex. No. 10; Tr. 973, 974.

<sup>191</sup>Tr. 4789.

Mr. Heltzel provided examples of locations where DVP transmission structures are currently located within VDOT limited access interchanges:

1. I-95 and Route 1 at the Woodrow Wilson Bridge (Alexandria) – two double-circuit 230 kV lines;
2. I-64 at Route 199 at Busch Gardens (near Williamsburg) – two double-circuit 230 kV lines;
3. I-95 and I-895, Pocahontas Parkway (south of Richmond) – one double-circuit 230 kV line;
4. I-95 and Route 3000, Prince William Parkway (near Dale City) – one single-circuit 500 kV line and one double-circuit 230 kV line;
5. Route 288 and Route 1 (south of Richmond) - one double-circuit 230 kV line and one single-circuit 115 kV line; and
6. I-64 and Laburnum Road (east of Richmond) – two double-circuit 230 kV lines.<sup>192</sup>

Section 24 VAC 30-150-1130 applies to new utility installations along controlled access highways. Mr. Heltzel explained that if certain conditions are met, the VDOT chief engineer is permitted under the Virginia Administrative Code to make exceptions to the provisions found in Section 24 VAC 30-150-1130 for the location of utilities within the right-of-way of highways with limited access designation, such as Route 7.<sup>193</sup> The principle condition in this case is that “no other viable route for the location of the transmission line exists that is also not in conflict with public interest.”<sup>194</sup> Mr. Heltzel stated that this determination is to be made by the State Corporation Commission, and VDOT will move forward with what the Commission determines is in the best interest of the public at large.<sup>195</sup>

Mr. Heltzel testified that he had studied the proposal to place the proposed transmission line underground along Route 7 and had determined that it would “certainly be more difficult”<sup>196</sup> than locating an overhead line along Route 7. Mr. Heltzel explained that constructing the line underground in the median would interfere with future improvements designed to add lanes to the inside or median of Route 7. Constructing the line underground along the shoulder of Route 7 would impact bridges that cross Route 7.<sup>197</sup>

While acknowledging that VDOT prefers the southern routes, Mr. Heltzel admitted that VDOT certainly understood at some point the Company would have to parallel the Route 7 alignment or be in close proximity to it in order to get to the planned Hamilton Substation.<sup>198</sup> Further, Mr. Heltzel acknowledged that the Commission may have difficulty justifying the condemnation of new right-of-way when an easement has already been set aside for a substantial period of time for the purpose of supporting the location of this transmission line.<sup>199</sup> Mr. Heltzel

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<sup>192</sup>Ex. No. 10.

<sup>193</sup>Ex. No. 11, at 2; Tr. 923; *See also* Tr. 2963, 2964.

<sup>194</sup>Tr. 923.

<sup>195</sup>Tr. 931, 939, 1017, 1018, 1020, 4817.

<sup>196</sup>Tr. 942.

<sup>197</sup>Tr. 941, 942.

<sup>198</sup>Tr. 4814.

<sup>199</sup>Ex. No. 9, at 4.



stated that, if the Commission chose the modified D route, VDOT would work with the Company in routing the proposed transmission line through the areas in question.<sup>200</sup>

To the fullest extent possible, Mr. Heltzel stated that poles and overhead lines should be placed outside VDOT limited access right-of-way. In the vicinity of the Route 15 interchange with the Route 7 Bypass, Mr. Heltzel explained that VDOT would prefer that DVP place its pole south of Clubhouse Drive to give VDOT the greatest flexibility for future expansion.<sup>201</sup> Mr. Heltzel concluded that there are no apparent safety issues related to pole or line failures.<sup>202</sup>

John Bailey testified that DVP met with VDOT on a number of occasions to discuss in detail routing the transmission line along Route 7. Mr. Bailey explained that VDOT recognized there is a public benefit if portions of projects can co-locate on existing right-of-way, and they noted areas where DVP might be able to parallel its right-of-way along Route 7. Mr. Bailey confirmed that VDOT was most concerned about the section of Route 7 between the intersection of Route 9 and the west side of Leesburg because the traffic congestion in that area would require the most lane expansions.<sup>203</sup> This is the section of Route 7 that is avoided by the modified D route following Trail segment B. Mr. Bailey stated that DVP is working with VDOT to minimize the impacts of the line on VDOT right-of-way and that VDOT is going to work with the Company to develop the D routes.<sup>204</sup>

Mr. Bailey also clarified that the poles along segment 7 prime on the north side of Route 7 or segment 8 on the south side of Route 7 would not be on VDOT right-of-way, but just outside the right-of-way. Accordingly, some additional right-of-way would have to be acquired at these locations.<sup>205</sup> Exhibit No. 39 illustrates this well.

Mr. Bailey also addressed the pole location on VDOT right-of-way near Wage Drive in south Leesburg. He explained that DVP has worked with Mr. Heltzel regarding that specific pole location and the Company has every indication that the pole placement is satisfactory with VDOT.<sup>206</sup> This location involves segment 11 which became segment 11 prime to reflect the modifications and improvements to the original design. Mr. Cox explained that he redesigned the engineering of the line to limit the number of structures on the berm adjacent to the Route 7 Bypass. The re-engineering of the line at this location also limited the number of trees that would have to be cut and limited the number of residences impacted by this portion of the modified D route. Mr. Bailey confirmed that the redesign reduced the number of poles from two to one at this location and explained that this redesign resulted from a meeting with Mr. Heltzel about minimizing the impact of the line where possible.<sup>207</sup> The final engineering and therefore the exact location of the single

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<sup>200</sup>Tr. 4827.

<sup>201</sup>Application appendix page 88.

<sup>202</sup>Ex. No. 9, at 4.

<sup>203</sup>Ex. No. 159, at 8; Tr. 5540, 5541.

<sup>204</sup>Tr. 1245, 2541, 2542, 2978, 5567, 2976.

<sup>205</sup>Tr. 5544. *See also* the map marked as Exhibit 28.

<sup>206</sup>Tr. 5568.

<sup>207</sup>Tr. 2945, 2946

pole on VDOT right-of-way adjacent to Wage Drive has not been determined.<sup>208</sup> Mr. Bailey confirmed that there is enough space to place a pole at that location without any problem.<sup>209</sup>

Mr. Bailey further testified that VDOT was comfortable with two poles at the Wage Drive location, therefore it should certainly be comfortable with only one pole. Mr. Bailey further confirmed that the pole location was not in conflict with the future expansion of Route 7.<sup>210</sup> Counsel for Leesburg attempted many times to establish an exact location of this particular pole and introduced exhibits to this end. However, the fact remains that a final pole location has not been determined and cannot be determined until the final engineering is completed, which would be done only if the modified D route is approved by the Commission. Any attempt to establish an exact pole location before that time is mere speculation.<sup>211</sup>

Mr. Bailey also confirmed VDOT's initial concern with the Sycolin Road interchange, but stated that DVP's preliminary engineering was able to address and accommodate those concerns.<sup>212</sup>

VDOT is primarily concerned about Route 7 from its intersection with Route 9 to its intersection with the W&OD Trail southwest of Leesburg because of heavy traffic flows that will require additions and improvements. Conversely, Trail A encompasses some of the most heavily canopied sections of the Trail west of Leesburg and the Paeonian Springs historic district. The modified D route avoids both of these sensitive areas.<sup>213</sup>

It is important to understand that final engineering and final approval from VDOT cannot be completed until the Commission has approved a route. DVP fully realizes that the design of this transmission line would have to accommodate future expansion of Route 7. DVP witnesses made it clear that this could be accomplished.

### **(3) Park Authority**

The Park Authority presented the testimony of three witnesses: Paul McCray, Thaddeus E. Hafner, and Charles Simmons. Katherine Rudacille adopted and sponsored the prefiled testimony of Mr. Hafner.

Paul McCray, director of operations for the Park Authority, testified that the Park Authority is a multi-jurisdictional, special purpose agency established to provide a system of parks of regional significance within Northern Virginia. As such, Mr. McCray stated the Park Authority operates twenty major regional parks and manages various historic and conservation oriented facilities, lands, and trails throughout Northern Virginia, including the W&OD Trail. Six local governments participate in the Park Authority: the City of Alexandria, Arlington County, City of Fairfax, Fairfax County, City of Falls Church, and Loudoun County. The Park Authority's governing body consists of twelve members, two appointed by each supporting jurisdiction.

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<sup>208</sup>Tr. 2949, 2951, 2953, 2954, 2960.

<sup>209</sup>Tr. 2972.

<sup>210</sup>Tr. 2982.

<sup>211</sup>Tr. 2949-2972, 2986.

<sup>212</sup>Tr. 5553.

<sup>213</sup>Tr. 1245.

Mr. McCray described the W&OD Trail as a 45-mile long, 100-foot wide linear park that runs east to west and traverses Northern Virginia from the City of Alexandria line in Shirlington (mile zero) through Arlington and Fairfax Counties to the Town of Purcellville in Loudoun County (mile 44.5). Mr. McCray stated the Arlington County end of the Trail is close to Washington, D.C. and as such is fairly urban, with dense residential, commercial, and industrial development adjacent to the Trail. As the Trail moves west, the surrounding land becomes more suburban through Fairfax County, with increased development densities in the City of Falls Church and the Towns of Vienna, Herndon, and Leesburg. The western portion of the Trail in Loudoun County is rural, with agricultural lands and low density development.

Mr. McCray testified that approximately two million visitors use the Trail annually. According to the Park Authority's survey, approximately 15 percent of weekend Trail visitors are from areas outside Northern Virginia, including Massachusetts, New York, Pennsylvania, the District of Columbia, and Maryland. Twenty-two percent of the Trail's visitors are residents of Loudoun County and the remaining 63 percent are from other Northern Virginia locations. Mr. McCray stated that many people use the Trail and its connector links to commute to jobs or Metro stations.<sup>214</sup>

Mr. McCray stated that the Trail is the former property of one of the earliest railroads in our nation's history. Authorized in 1847, Mr. McCray explained that the railroad shaped the future of Northern Virginia, with communities and industries developing along the route. The Commonwealth of Virginia has declared the W&OD Trail eligible to be included in the National Register of Historic Places and the nomination process for that designation is underway. In 1987, the Trail was designated a national Recreation Trail and given the distinction of being listed on the Department of Interior's national register of trails.

Mr. McCray noted that one of the most significant features of the Pleasant View to Hamilton section of the Trail is its lack of any transmission lines. In comparison, Mr. McCray stated there is a 230 kV transmission line on the eastern section of the Trail between Shirlington Road in Arlington and Pleasant View Substation. Mr. McCray explained that, in accordance with a memorandum of understanding with DVP, vegetation along the Trail is routinely cleared to protect the existing electric lines.

Mr. McCray testified that when he became a park manager in 1985, he was successful in working with DVP foresters to use selective clearing of tall tree species instead of clear cutting. However, Mr. McCray stated that in 2004, the Company reverted to its previous practice of clear cutting trees near the power lines. Mr. McCray stated that clear cutting affects the view, eliminates the shade, and increases the visibility of power lines along the Trail.<sup>215</sup>

Mr. McCray testified the Trail west of Leesburg has some major fill areas about fifty feet high<sup>216</sup> and some steep cut sections about twenty to twenty-five feet deep.<sup>217</sup> The paved Trail path

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<sup>214</sup>Ex. No. 98, 1-5.

<sup>215</sup>Id. at 9.

<sup>216</sup>At the hearing Mr. McCray testified that the fill areas were as much as 40 feet above the surrounding elevations. Tr. 4168.

<sup>217</sup>Tr. 4168, 4224, 4225.

is eight feet wide with narrow shoulders due to the significant cut and fill. Mr. McCray stated the slopes are steeper than 2:1 in both the cut and fill sections. There is a gravel equestrian path that often abuts the paved path in this section due to the steep slopes. This gravel pathway is used by mountain bikers and horseback riders. Mr. McCray explained that the section of the Trail between Leesburg and Purcellville contains the most significant tree cover of the entire forty-five mile park because it has not been cut since at least 1968 and contains many mature trees which create an arch-like canopy over the Trail.<sup>218</sup>

Mr. McCray based his prefiled testimony on the premise that DVP is proposing to clear cut the entire 100-foot width of the Trail between the Pleasant View Substation and the proposed Hamilton Substation, thereby replacing the cathedral-like tree canopy with 110-foot tall transmission towers. Mr. McCray estimated this would result in the loss of 26,000 trees.<sup>219</sup> At the hearing, Mr. McCray presented a tree survey prepared by Zimar and Associates at the direction of the Park Authority that estimates the tree loss if the proposed transmission line were placed in the center of the Trail. Mr. McCray explained that a wide variety of trees was found on the Trail property including boxelder, maple, sycamore, black walnut, tulip poplar, American elm, and hackberry. Some of the trees surveyed were up to 22 inches in diameter. Based on the Zimar survey, Mr. McCray revised his estimate of the number of trees two inches in diameter or more along the Trail upward to 36,000 trees. Mr. McCray testified that there are 19,000 trees on the Trail property with a diameter of four inches or more. At the hearing, Mr. McCray estimated that 46 percent of the trees along the Trail would be removed and that 55 percent would have to be trimmed down to 55 feet in height if the proposed transmission line is placed on the Trail.<sup>220</sup> Mr. McCray stated that he does not believe there can be any tree canopy on the Trail if it is used as a transmission line right-of-way.<sup>221</sup> Further, Mr. McCray stated the Company's proffered mitigation measures are not acceptable to the Park Authority.<sup>222</sup>

Mr. McCray related that he previously had a frustrating experience involving a damage claim with DVP regarding a duct bank. In 1984, Mr. McCray testified that DVP damaged the Trail with its heavy equipment while installing a duct bank in Fairfax County. Mr. McCray stated the Park Authority repeatedly requested that DVP repair the damage, but the Company refused. The Park Authority estimated the damage at \$150,000, but eventually settled with the Company for approximately \$75,000.<sup>223</sup> Mr. McCray testified it has been his experience that DVP construction projects are very invasive and disruptive to Trail users. Mr. McCray stated that although the Park Authority has tried to work with the Company in the past, often the Company hires contractors who do not use the expected care during construction.<sup>224</sup>

In addition to pre-Civil War stone arches, Mr. McCray testified there are dozens of three- to four-foot wide pre-Civil War stone boxes embedded in fill dirt to facilitate drainage along the Trail. Mr. McCray related that these structures were carefully noted during the survey to determine

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<sup>218</sup>Ex. No. 98, at 12.

<sup>219</sup>*Id.* at 13.

<sup>220</sup>Tr. 4174, 4176, 4193. Mr. McCray later stated that he relied on others for this information. Tr. 4226-4229.

<sup>221</sup>Tr. 4247-4249, 4251.

<sup>222</sup>Tr. 4251, 4252.

<sup>223</sup>Ex. No. 98, at 16.

<sup>224</sup>Tr. 4202, 4203

eligibility for the National Historic Register. Mr. McCray stated the Park Authority supports any underground route that does not impact recreational or historic features.<sup>225</sup>

In particular, Mr. McCray testified that there are three stone arches twenty to twenty-five feet high that were constructed before the Civil War to span creeks. Although these bridges supported trains during the years the railroad was active, Mr. McCray is unsure whether they now would sustain the weight of construction equipment.<sup>226</sup>

As previously stated, Mr. Hafner's prefiled testimony was adopted by Mrs. Rudacille, who answered questions on cross-examination. Mr. Hafner's prefiled testimony addressed the Company's route selection process. Mr. Hafner confirmed that when the Company began its route selection process in April of 2004, it was considering only its existing right-of-way along the Trail. Mr. Hafner stated the Park Authority was very concerned that the Company was not even considering alternative routes to what is described as the last pristine section of the Trail.<sup>227</sup> Only after an extraordinary outpouring of public opposition, according to Mr. Hafner, did the Company consider alternate routes for its proposed transmission line.<sup>228</sup>

Mr. Hafner argued that, while there is hostility towards any overhead transmission lines in this case, the level of opposition to using the Trail is much greater than to other alternatives. Mr. Hafner pointed to the outpouring of public opposition by means of petitions, emails, letters, and public witness testimony, as well as local government opposition evidenced by letters and resolutions from local government officials and boards. Mr. Hafner stated that members of the General Assembly, especially Delegate May, have been quite active in seeking a solution that would avoid overhead lines along the W&OD Trail. Finally, Mr. Hafner stated that organizations such as the Sierra Club and the Virginia Association of Parks have deemed this case significant enough to become involved in support of the Park Authority.<sup>229</sup>

Mrs. Rudacille pointed out that the Trail is a very narrow corridor and it is difficult to maintain a buffer with such a narrow strip of land. Mrs. Rudacille testified that, in the Beaumeade to Beco transmission line case,<sup>230</sup> the Commission directed the Company to purchase additional right-of-way adjacent to the Trail to create a buffer for four transmission line poles. Although Mrs. Rudacille stated that the Company acted in good faith, it was not able to purchase additional right-of-way and eventually replanted lower growth tree species on the Trail.<sup>231</sup>

Park Authority witness Charles Simmons is a licensed electrical engineer formerly employed by Appalachian Power Company ("APCo") from 1956 until his retirement in 1996. During his tenure with APCo, Mr. Simmons was responsible for the design, construction,

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<sup>225</sup>Tr. 4196, 4197.

<sup>226</sup>Tr. 4181.

<sup>227</sup>Mr. Hafner pointed out that he uses the term "park" in describing the W&OD Trail because it is more than a bike trail. I use the term "Trail" only to maintain consistency throughout the Report.

<sup>228</sup>Ex. No. 106, at 3.

<sup>229</sup>Ex. No. 106, Appendix D.

<sup>230</sup>*Application of Virginia Electric and Power Company d/b/a Dominion Virginia Power, For a certificate of public convenience and necessity for facilities located in Loudoun County: Beaumeade-Beco 230 kV Transmission Line and Beaumeade-Greenway 230 kV Transmission Line*, Case No. PUE-2001-00154, 2003 S.C.C. Ann. Rep. 314.

<sup>231</sup>Tr. 4337, 4338.

maintenance, and operation of APCo's transmission system. Mr. Simmons served as vice president of construction and maintenance<sup>232</sup> at APCo during the final seventeen years of his employment there.

Mr. Simmons testified that the greatest impact, and the impact that would continue for the life of the transmission line, would be the loss of vegetation along the Trail. Mr. Simmons maintained that approximately 75 percent of the W&OD Trail between Pleasant View Substation and the proposed Hamilton Substation is wooded and would require clearing for a transmission line to be constructed. Mr. Simmons stated that removal of the vegetation and the buffer it provides would completely change the character of this portion of the Trail. Mr. Simmons contended that the visual impact of the transmission line would be extremely disruptive and the linear nature of the Trail would preclude any meaningful screening of the transmission structures.<sup>233</sup>

Mr. Simmons noted that the construction phase of the proposed transmission line would be very disruptive to Trail use. Not only would it require clearing and removal of vegetation, but drilling, excavation, delivery and pouring of concrete for tower foundations would preclude safe utilization of the Trail for significant periods of time. Mr. Simmons maintained that the weight and size of the construction equipment would undoubtedly damage, if not destroy, the existing paved and graveled pathways. Mr. Simmons pointed out that the Company's application indicates that construction and completion of this transmission line project would require a year.<sup>234</sup>

Mr. Simmons advocated mitigation measures such as a vegetation inventory, development of a clearing plan that minimizes vegetation removal, and utilization of non-reflective conductors and subdued colors for tower structures as a base line for the construction of any transmission line. Mr. Simmons concluded that the effectiveness of such measures would vary depending on site-specific circumstances.<sup>235</sup>

Mr. Simmons believes that, although the modified D route would be considerably shorter than the Company's proposed E7 route, ultimately it would be more costly for several reasons. First, Mr. Simmons stated that more tower structures would be required for the Trail and that about 80 percent of those structures would have to be angle structures.<sup>236</sup> Second, Mr. Simmons concluded that the steady slope of the Trail would not accommodate the use of longer spans that could be used over more varied terrain. Mr. Simmons based his conclusions on his contention that the curving nature of the Trail would require shorter spans and more angle structures. Mr. Simmons stated that the number of structures required virtually dictates the overall cost of the line. Third, Mr. Simmons maintained that access to the Trail for construction and maintenance purposes would be difficult because of the proximity to homes in some areas and the forested nature of the Trail.<sup>237</sup> In conclusion, Mr. Simmons projected that the cost of the modified D route would be greater than any other alternative.<sup>238</sup>

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<sup>232</sup>Ex. No. 110, at 2.

<sup>233</sup>*Id.* at 3.

<sup>234</sup>*Id.* at 7.

<sup>235</sup>*Id.* at 11.

<sup>236</sup>Angle structures are more expensive than tangent structures because the angle structures have to bear more weight and are therefore of heavier construction.

<sup>237</sup>Tr. 4459 – 4462.

<sup>238</sup>Tr. 4492.

## *Leesburg Airport*

The Leesburg Airport is in the middle of the Company's study area and would be potentially impacted by all routes. The Leesburg Airport is a major reliever airport for the Washington area which includes Dulles, Reagan National, and BWI Airports. As a reliever airport, Leesburg Airport would be used in cases of emergency, and was so used on September 11, 2001.<sup>239</sup> The Department of Aviation reports that there are 82,000 flights per year in and out of the Leesburg Airport.<sup>240</sup>

Don Robb, owner and operator of Av-Ed Flight School at Leesburg Airport has operated the flight school at Leesburg Airport for the past 25 years. Mr. Robb explained that power lines near an airport are a hazard to pilots because they are hard to see, even in good weather. Mr. Robb stated that pattern altitude at the Leesburg Airport is 1,200 feet above sea level.<sup>241</sup> Because of restricted airspace in the Washington D.C. area, pilots on visual flight rules ("VFR") cannot go above 1,500 feet. A safety concern is that the proposed E7 route crosses a 600-foot ridge, in direct line with the VFR approach to the airport.<sup>242</sup> The old growth forest testified to by Mr. Perry is on this hill and many of the trees are 80 feet or more in height. The line would limit general aviation pilots to a very narrow window on their approach. Several nearby residents testified that planes fly low over the hill on their approach to Leesburg Airport.<sup>243</sup>

Mr. Robb stated that his students alone make about 4,000 approaches annually over the hill where the E7 route would cross. Mr. Robb explained that he can train his students to navigate the approach over the hill at 1,400 feet which is very close to restricted airspace at 1,500 feet, but visiting pilots may not be aware of the situation. Mr. Robb testified that, at the pattern altitude of 1,200 feet, the plane is very close to the trees on top of the hill. Mr. Robb contends that the Company's proposal to run the transmission line over the hill at that location would constitute an additional hazard in an already hazardous area and would "[set] things up for a disaster."<sup>244</sup>

Steven Axeman, chairman of the Leesburg Executive Airport Commission,<sup>245</sup> also expressed concern about the approach over the ridge and the potential hazard that would be created by the addition of a transmission line on the ridge. Mr. Axeman stated, "It's a very narrow window, especially with something that's difficult to see, especially at night, and especially under low-visibility conditions."<sup>246</sup>

Mr. Axeman also expressed concern with the Company's proposed E7 route and alternate segments 35 and 36 in relation to the southern end of the airport. Mr. Axeman testified that the Company's southern routes are right up against the southern end of the runway protection zone

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<sup>239</sup>Tr. 857, 899.

<sup>240</sup>Tr. 810, 811.

<sup>241</sup>All altitudes will refer to the altitude above sea level.

<sup>242</sup>Tr. 808, 809.

<sup>243</sup>Tr. 480, 481, 708, 709, 795.

<sup>244</sup>Tr. 607

<sup>245</sup>Mr. Axeman also works for the Federal Aviation Administration as an operations supervisor at the Washington Air Route Traffic Control Center. Tr. 897. Mr. Axeman is also a flight instructor and a commercial instrument rated pilot. Tr. 865.

<sup>246</sup>Tr. 858.

(“RPZ”). Currently, there are plans for the runway to be extended 500 feet on its southern end, the only possible direction for expansion.<sup>247</sup>

The D routes and modified D route cross the area north of the airport along Route 7. Mr. Axeman explained that the RPZ extends 2,500 feet from the end of the runway and the Route 7 Bypass is about 2,300 feet from the north end of the runway.

Mr. Axeman explained that the Federal Aviation Administration (“FAA”) has approved and funded an Instrument Landing System (“ILS”) for the Leesburg Airport. Once installed, the ILS will enable aircraft to make a lower approach to the airport. Mr. Axeman testified that any obstacle, including power lines, within 20,000 feet of a runway would require FAA approval.<sup>248</sup> When asked about the existing power lines to the east of the airport, Mr. Axeman stated that, because the lines are well outside the traffic pattern and run parallel to the runway, they are not a concern.<sup>249</sup>

Mr. Axeman admitted that much depends on the height of the towers and the altitude of the terrain on which they are placed, but he reiterated that transmission lines to the north or south of the airport are a concern and recommended that the Company consult with the FAA. Mr. Axeman also related that two lifeguard helicopters operate in and out of the Leesburg Airport and that they typically fly below traffic pattern altitude to avoid conflict with fixed-wing aircraft.<sup>250</sup>

In response to cross-examination by Mr. Cornwell, it was determined that the elevation of the Leesburg Airport is 380 feet. The altitude of the Route 7 Bypass at the north end of the airport was determined to be 330 feet.<sup>251</sup>

In conclusion, both Mr. Axeman and Mr. Robb stated that the safest method of installing the transmission line from an aviation point of view would be to place it underground.<sup>252</sup>

On rebuttal, Company witness Welter testified that the Company had conferred with Leesburg Airport representatives and airport consultants and provided specific information pertaining to routes to the north and south of the airport. The Company reassessed all routes and determined that the transmission structures would not conflict with airport operations. Mr. Welter further testified that transmission structures would be only 20 feet above the treeline as the line crosses the ridge on Hogback Mountain on the E7 route and should not create an aviation hazard.<sup>253</sup>

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<sup>247</sup>Tr. 856, 859.

<sup>248</sup>Tr. 854

<sup>249</sup>Tr. 870.

<sup>250</sup>Tr. 859, 860.

<sup>251</sup>Tr. 890.

<sup>252</sup>Tr. 605, 876.

<sup>253</sup>Tr. 5653, 5654. Company witness Koonce also testified that he conferred with the FAA regarding radio interference from the line. After review, the FAA concluded that the line would have no impact on operations from their Market Street center. Tr. 5175.



## *Underground*

Loudoun County witness Gerry Sheerin provided testimony regarding underground cross-linked polyethylene (“XLPE”) power lines. Mr. Sheerin is director for engineering and technology with EHV Power Corporation (“EHV”), a firm that installs underground high voltage power cable systems. Mr. Sheerin is a field engineer who provides construction support as well as repair and maintenance support for high voltage underground systems. Mr. Sheerin testified that EHV has been active in Canada, the United States, and the Caribbean installing 69 kV, 115 kV and 230 kV XLPE, high pressure fluid-filled (“HPFF”), and low pressure fluid-filled underground electric cables. He has twenty years of experience with high voltage cables including a 230 kV XLPE cable installed in 1989 that he believes was the first of its kind in North America.<sup>254</sup>

Mr. Sheerin’s testimony addressed the engineering feasibility and installation costs of the proposal to underground the Pleasant View-Hamilton transmission line. Mr. Sheerin stated that aspects of his testimony are preliminary in that further engineering work would be required to provide final engineering and costs for the underground facility, but his estimates are fairly certain. Mr. Sheerin stated that the Company’s proposed route was suitable for underground cables because it has relatively long, straight segments; avoids built-up areas; and encompasses relatively flat terrain. Mr. Sheerin saw no obstacles that would prevent underground installation of the proposed line.<sup>255</sup>

Mr. Sheerin recommended that most of the underground cable route be constructed using a single concrete encased duct bank which would contain six cables in eight-inch diameter ducts. This duct bank would be constructed in a 3.3-foot wide trench at a minimum depth of four feet below ground level. Manholes for cable splicing would be positioned at approximately 2,000-foot intervals. Deviations from the concrete duct bank style of construction would occur at the crossings of the Dulles Greenway, Route 15, and Route 7. The crossings would require horizontal drilling to install the individual conduits into which the cables would subsequently be pulled. Due to the depth of these crossings and its effect on cable heat dissipation, Mr. Sheerin recommended that the individual conduits be separated from each other at these crossings by three feet. Mr. Sheerin stated that in some instances the cable conduits could be attached to bridges in the general vicinity of the proposed crossings.<sup>256</sup>

Mr. Sheerin also testified there are several places where the route traverses flood plains. Mr. Sheerin stated that the facility would need to be designed and installed to avoid placing vaults where they would be subject to flooding. Mr. Sheerin maintained that the best approach would be to cross the low ground at an angle perpendicular to the flood plain at the narrowest point possible.<sup>257</sup>

Mr. Sheerin’s prefiled cost estimate, excluding right-of-way acquisition, based on the 15.7-mile distance stated in the Company’s application is \$74,441,672.<sup>258</sup>

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<sup>254</sup>Ex. No. 58, at 2, 3.

<sup>255</sup>*Id.* at 3-5.

<sup>256</sup>Ex. No. 58, at 6.

<sup>257</sup>*Id.* at 5.

<sup>258</sup>*Id.* at 7.

Mr. Sheerin testified that, if properly installed, an underground transmission cable system is just as reliable, if not more reliable than an overhead transmission line. The underground transmission cable system, according to Mr. Sheerin, is not subject to the temporary outages experienced by overhead transmission lines. Mr. Sheerin maintained that, if properly installed, an underground transmission system should operate flawlessly for forty to fifty years, requiring only routine maintenance.<sup>259</sup>

Mr. Sheerin stated that he first became involved with installing XLPE cable in 1989. Mr. Sheerin testified that he has never experienced a failure with XLPE cable that he or his company has installed, and he attributes this success rate to proper installation, which he believes is the key to successful underground cable operation.<sup>260</sup> Mr. Sheerin stated that the first 230 kV XLPE in Canada was installed in 1989 at a transformer station in Toronto and has been in service since that date.<sup>261</sup>

He agreed with Staff counsel Bolstad that, given a choice, most utilities worldwide would choose to install transmission lines overhead rather than underground. Mr. Sheerin testified that the underground option comes into play only when there are certain obstacles which make the overhead option unattractive. Mr. Sheerin cited urbanization as a significant obstacle to overhead transmission lines.<sup>262</sup> Mr. Sheerin noted, however, that XLPE is becoming the cable of choice for underground installation rather than fluid-filled systems.<sup>263</sup>

Loudoun County and Leesburg witness Peter J. Lanzalotta, a principal of Lanzalotta & Associates LLC,<sup>264</sup> provided testimony pertaining to an underground route from the Pleasant View Substation to the proposed Hamilton Substation. Citing the visibility factor of overhead transmission lines as a major issue in this case, Mr. Lanzalotta stated that it is possible generally to follow the Company's proposed route with an underground line and eliminate many objections to the proposed transmission line. Mr. Lanzalotta acknowledged that undergrounding presents problems when bodies of water are traversed; however, his underground proposal is a shorter route, thus making it more competitive with the overhead alternative. Furthermore, Mr. Lanzalotta stated that shortening the route with an underground alternative decreases the capacitance problem resulting from integrating an underground transmission line with an overhead transmission system.<sup>265</sup>

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<sup>259</sup>Tr. 2717, 2764.

<sup>260</sup>Tr. 2718.

<sup>261</sup>Tr. 2762.

<sup>262</sup>Tr. 2751.

<sup>263</sup>Tr. 2763.

<sup>264</sup>Mr. Lanzalotta received a Bachelor of Science degree in electric power engineering from Rensselaer Polytechnic Institute and a Masters degree in business administration from Loyola College in Baltimore, Maryland.

<sup>265</sup>Ex. No. 78, at 4, 5.

The following is a narrative description of the route proposed by Mr. Lanzalotta:

1. Beginning at the Pleasant View Substation, proceed south along the existing transmission line corridor also shown as segment 38 (all segment references refer to segments identified on Dominion's Figure 3-1 in the Company's Application) until reaching the distribution line corridor or Shreve Mill Road;
2. At the intersection of segment 38 and the Shreve Mill/distribution line corridor, proceed west in or along the right-of-way of Shreve Mill Road to the intersection of Shreve Mill Road and Evergreen Mills Road;
3. Proceed west cross-country (following property boundary lines) until intersecting with segment 33;
4. Proceed along segment 33 until it intersects with Gleedsville Road;
5. From this point, proceed west by northwest from segment 33 to the intersection of Harmony Church Road and Route 15;
6. From this intersection, proceed along Harmony Church until it intersects segment 30 (or in the immediate vicinity thereof);
7. Proceed along segment 30 and segment 27 until segment 27 "dog legs" to the west;
8. From this bend, proceed cross-country to the intersection of Canby and Thomas Mill Road;
9. Travel in or along the right-of-way of Canby Road until it intersects with Digges Valley Road;
10. From this intersection, proceed cross-country north by northwest to segment 22. Proceed along segment 22 or along a route generally parallel to segment 22 (following property lines) to E. Colonial Highway near Gable Farm Lane;
11. Near the intersection of Gable Farm Lane and E. Colonial Highway, continue north to the southern edge of Route 7; and
12. From this point, there are three similar alternatives to reach the proposed Hamilton Substation:
  - a. Option 1: Follow VDOT right-of-way along Route 7 to Hamilton Substation, crossing to the north Route 7 at either Hamilton Station Road or Ivandale Road;
  - b. Option 2: Follow northern property lines of parcels along the south of Route 7 right-of-way parallel to Route 7 along northern boundary lines of parcels south of Route 7 crossing to the north of Route 7 at either Hamilton Station Road or Ivandale Road; and
  - c. Drill beneath Route 7 and proceed along northern Route 7 right-of-way or adjacent property boundaries.

Mr. Lanzalotta stated that his alternative generally follows the Company's proposed route, but is approximately 12.5 miles long, at least three miles shorter than the Company's 15.7-mile proposed route. Mr. Lanzalotta anticipated that right-of-way width would be about 20 to 40 feet depending on line location, number of circuits, and the necessity of providing for future expansion.<sup>266</sup>

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<sup>266</sup>Id. at 7.

Staff offered testimony on undergrounding issues, explaining that there are two main reasons that transmission lines are not customarily built underground. First, underground transmission is extremely expensive; second, voltage and power flow imbalance problems inherent to underground cables limit maximum cable circuit lengths and may require the installation of additional regulation and termination equipment.

Staff noted that the voltage rise problem can be remedied by shunt reactors, static VAR compensators, and phase shifting transformers. The flow imbalance problem can be rectified by adding series reactors. Staff pointed out that the Company's cost estimates for an underground transmission line include the added costs of installing remediation for the voltage rise problem. Staff further noted that the shunt capacitance of XLPE cable is about 60 percent of HPFF, therefore XLPE cable voltage rise would be less than that experienced with HPFF and therefore less expensive to correct.<sup>267</sup>

Staff pointed out a third problem, reliability. Reliability can be solved by building redundancy into the system, but the problem becomes acute with a radial circuit as in the present case. Staff stated it is generally accepted that underground outages are of longer duration than overhead outages. However, Staff noted it is reasonable to expect somewhat shorter outage durations with XLPE compared to typical underground outages because of the ability to withdraw and replace cable segments at splice vaults, which cannot be done with HPFF cables.<sup>268</sup>

Staff does not support the underground proposal for several reasons. First, transmission lines are typically built overhead throughout the country. Second, the cost of placing this line underground is significantly higher than overhead construction, and ratepayers across DVP's service territory would bear the additional cost. Finally, Staff has concerns with directing the Company to employ technology with which it has had little experience. Staff noted that all of the Company's current underground 230 kV cable uses HPFF technology.<sup>269</sup>

William Michael Lewis,<sup>270</sup> testifying on behalf of Cammack Brothers/Orme, proposed a hybrid transmission line combining overhead lines with an underground segment along the W&OD Trail. Mr. Lewis proposed to "direct bury" XLPE cables for about 2.5 to 3 times the cost of installing an overhead equivalent not including right-of-way costs. Mr. Lewis stated that his proposal would require about twenty feet of right-of-way with the cables placed in two trenches of about two to three feet in width.<sup>271</sup> Mr. Lewis claimed that right-of-way costs would be lower for undergrounding because less right-of-way would be required.

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<sup>267</sup>Ex. No. 145, at 42.

<sup>268</sup>Id. at 43.

<sup>269</sup>Id. at 47.

<sup>270</sup>Mr. Lewis is a licensed professional engineer in the state of Ohio and the Commonwealth of Kentucky. Mr. Lewis has prepared and/or presented testimony in the areas of need, design, and routing of electrical transmission lines before the Federal Energy Regulatory Commission, the Virginia State Corporation Commission, the Public Utility Commissions of Ohio, Kentucky, and Georgia, and various state and federal courts.

<sup>271</sup>Ex. No. 128, at 4, 5.

Mr. Lewis's "direct burial" proposal would involve digging two trenches, "unroll[ing] the cable. . . into the trench and throw[ing] dirt on top of it."<sup>272</sup> Every half mile a concrete vault would be required for splicing segments of cable together. The distance between these vaults would be determined by the size of the cable and how big a reel could be brought to the job site. Each trench would hold three cables creating a double circuit of about 500 MVA on each circuit.<sup>273</sup> Mr. Lewis testified that the failure rate for his proposal is extremely low; it also would avoid using heavy trucks and earth-moving equipment.<sup>274</sup> Mr. Lewis attributed the increased capacity to higher thermal capability for direct buried cable compared to cable encased in concrete.<sup>275</sup>

With regard to reliability, Mr. Lewis stated that statistically, a failure rate of 1/10<sup>th</sup> of a failure every 100 circuit miles per year can be expected.<sup>276</sup> The most common cause of failure, according to Mr. Lewis, is a dig-in when someone digs into and damages the cable. In this situation, Mr. Lewis contemplates having to replace approximately ten feet of cable by making a splice at two ends. On average, Mr. Lewis maintained that a repair of this type would take two days of work.<sup>277</sup> Mr. Lewis stated that the cables can be tested before shipment, at the site, after the splices are made, and periodically thereafter.<sup>278</sup> Mr. Lewis claimed that, because the two circuits are on opposite sides of a vault, work can be performed on one set of cables in the vault while the other set of cables remains energized.<sup>279</sup>

Company witness LaVigne responded to the many requests to place the proposed transmission line underground. He explained that the additional cost is not the only factor that the Company considered; voltage rise and load flow imbalances are also concerns with underground transmission lines. Mr. LaVigne explained that underground cable has a significantly higher capacitance than overhead conductors. As the capacitance increases, Mr. LaVigne pointed out that voltage also increases. As Mr. LaVigne explained, voltage rise on an electrical grid has an inverse relationship to load. For example, as load increases, voltage decreases and vice versa.<sup>280</sup>

Mr. LaVigne used the Company's Ox to Glebe 230 kV line as an example of the problems that arise from integrating overhead with underground transmission lines. Mr. LaVigne explained that because of the high capacitance (higher voltage with less load) on the Ox to Glebe underground line, voltage at the Glebe Substation approaches the upper operating limit of the equipment during light load conditions. When this occurs, Mr. LaVigne stated that the underground line must be switched out of service. Because this part of the Company's system is networked (meaning it can be fed from other lines), Mr. LaVigne stated that service is not interrupted. However, a radial underground line to Hamilton Substation could not be taken out of service because it would be the only 230 kV feed into the Hamilton Substation. If the line were taken out of service, customers served by the Hamilton Substation would lose power.<sup>281</sup>

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<sup>272</sup>Tr. 4668.

<sup>273</sup>Tr. 4676.

<sup>274</sup>Tr. 4668.

<sup>275</sup>Tr. 4681.

<sup>276</sup>Tr. 4670, 4671.

<sup>277</sup>Tr. 4673.

<sup>278</sup>Tr. 4716.

<sup>279</sup>Tr. 4718.

<sup>280</sup>Ex. No. 150, at 5.

<sup>281</sup>Id. at 6.

Mr. LaVigne testified the Company asked its consultant, KEMA, Inc. (“KEMA”), to study the voltage rise effects of overhead versus underground Pleasant View-Hamilton lines at two lengths, 15.7 miles and 12 miles, and using either HPFF or XLPE underground cables.<sup>282</sup> KEMA concluded that, for both the 15.7- and 12-mile overhead line alternatives at light load levels that typically would be experienced during April, May and October, no high voltages would occur for any of the conditions or contingencies studied for the overhead configuration. However, KEMA found that high voltages would occur for all of the underground alternatives.

KEMA concluded that installation of 200 MVAR shunt reactors would be the most attractive mitigation alternative to the high voltage condition attributed to the underground alternatives, at an estimated cost of \$3 million. Mr. LaVigne testified at the hearing that, based on information from DVP’s substation design employees, the cost of a 150 or 200 MVAR reactor bank would be \$3.5 million. In addition, Mr. LaVigne stated that circuit breakers would be required at a cost of \$1.5 million.<sup>283</sup> Mr. LaVigne noted that the addition of shunt reactors increases the overall complexity of the system and reduces its overall reliability by introducing another element that could fail.<sup>284</sup>

Mr. LaVigne further testified regarding load flow imbalances associated with undergrounding. In approximately 2020, a Hamilton-Middleburg line will be constructed, thereby creating a network at the Hamilton Substation. The Company is concerned with having two transmission lines with significantly different levels of power flow going into the Hamilton Substation.<sup>285</sup> Mr. LaVigne explained that load flow imbalances result when conductor characteristics differ among the circuit paths. The flow of current will take the path of least resistance, causing more power to flow on the path of least resistance. Mr. LaVigne stated that an underground line will change the circuit characteristics and power flow on the system. These power flow changes must be evaluated from a total system standpoint because, with networked overhead and underground lines, the lower impedance underground circuit will produce an imbalance, a greater load flow on the underground circuit and reduced load flow on the overhead circuit. Mr. LaVigne maintained that this load flow imbalance could have a significant impact on the entire system.<sup>286</sup>

Company witness Koonce, a consulting engineer in DVP’s transmission engineering department, stated that the Company’s transmission system is comprised of approximately 6,100 miles of lines operating at voltages of 69 kV and above. Of this total, Mr. Koonce stated there are 18.3 miles of 69 kV underground lines, 0.075 miles of 115 kV underground lines, and 32.36 miles of 230 kV underground lines. The underground facilities represent 0.83 percent of the Company’s total transmission system.<sup>287</sup>

Mr. Koonce explained the Company is obligated to provide reliable electric service in the most economical manner possible. In the very limited number of cases in which no viable overhead line routes were available, the Company has installed underground lines. Examples are found in the

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<sup>282</sup>The KEMA study is Attachment RLL-2 to Mr. LaVigne’s prefiled testimony.

<sup>283</sup>Tr. 5126, 5127.

<sup>284</sup>Ex. No. 150, at 9.

<sup>285</sup>This assumes that one line would be underground and the other line overhead.

<sup>286</sup>Ex. No. 150, at 10.

<sup>287</sup>Ex. No. 151, at 3.

highly urbanized areas in Northern Virginia or where a customer paid for the underground service and the service was of a radial configuration.<sup>288</sup>

Mr. Koonce testified that the Company's experience with XLPE cables has not been positive. In 1995, a 115 kV XLPE cable inside the Company's 12<sup>th</sup> Street Substation in downtown Richmond suffered a catastrophic failure resulting in an explosion and was subsequently abandoned. Mr. Koonce also testified that a contractor drove a steel H beam through an underground HPFF cable in Alexandria, Virginia. Fortunately, the underground line was not energized at the time of the mishap, but repairs took thirty-three days.<sup>289</sup> The Company has not installed any 230 kV circuits utilizing XLPE insulated cables for several reasons. First, domestic (US) electric utilities have very little operating experience with the XLPE technology at voltages of 230 kV and higher. Mr. Koonce stated that DVP has utilized the HPFF technology for its underground facilities because of its proven reliability. Second, Mr. Koonce maintained that the estimated costs for XLPE cable installations, constructed in an appropriate manner for the local environment and operating conditions, have not revealed any significant savings compared to the HPFF technology. Finally, Mr. Koonce contended that the reliability of XLPE cables in the Company's 35 kV distribution class has been less than what would be acceptable for a 230 kV installation.<sup>290</sup>

Mr. Koonce concluded that the Pleasant View-Hamilton 230 kV transmission line should not be installed underground for several important reasons. Undergrounding would have a detrimental effect on reliability, would create operating problems under normal and contingency outage situations, and would involve significantly greater costs. Mr. Koonce stated it is far easier to locate and repair the cause of an outage on an overhead line than on an underground line. Mr. Koonce further explained that fiber optic elements in "smart" cables are intended for use in taking distributed temperature measurements along the cable, and they cannot be relied upon to serve as fault location tools.<sup>291</sup> Further, Mr. Koonce stated splicing XLPE cable is highly specialized and only a very few contractors in the United States can perform repair work on an XLPE transmission line.

Mr. Koonce continued by describing another related problem associated with underground transmission lines. When a fault occurs on an overhead transmission line, the line may not have been damaged and service can be restored immediately, sometimes with the interruption of power flow lasting only a fraction of a second. Mr. Koonce stated that such automatic reclosing is not permitted on underground transmission lines because the fault will likely result in damage to the cable and its insulation. When a fault occurs on an underground transmission line, Mr. Koonce stated the line is kept out of service until tests can be performed to determine the cause of the fault and the extent of damage to the cable. Typically such testing takes several days to complete, during which time the Hamilton Substation would be out of service because of the radial feed.<sup>292</sup>

On rebuttal, Mr. Koonce presented his plan and the related cost estimate for an eleven-mile underground line along the Trail using XLPE cable. Mr. Koonce pointed out that Mr. Sheerin's design places all the cables in a common duct bank. Mr. Koonce would place cables in separate duct

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<sup>288</sup>Exhibit 1 to Mr. Koonce's testimony lists the reasons lines have been installed underground.

<sup>289</sup>Tr. 5164.

<sup>290</sup>Ex. No. 151, at 6.

<sup>291</sup>Id. at 10, 11.

<sup>292</sup>Id.

banks eight feet apart. This separation would eliminate mutual heating from the cables which would raise the ampacity from the 823 MVA provided by Mr. Sheerin's plan to a level much closer to the 1047 MVA provided by the overhead transmission line. Further, Mr. Koonce would add a third set of cables to provide redundancy in the event one set of cables failed. Mr. Koonce's estimated cost for this underground system is \$80 million exclusive of any right-of-way cost.

Mr. Koonce also offered a plan for an HPFF line along the same eleven-mile Trail route. Because HPFF cables have experienced a few more losses and are not as efficient as the XLPE cables, Mr. Koonce designed two duct banks eight feet apart with each duct bank containing two sets of cables. Mr. Koonce estimated the cost of this system at \$90 million, again exclusive of right-of-way costs. In comparison, Mr. Koonce estimated the cost of building an overhead transmission line along the eleven-mile Trail route would be \$11 to \$13 million.<sup>293</sup>

Mr. Koonce further testified that the cost of aluminum and copper has increased. From June of 2005 to the time of the hearing, Mr. Koonce stated the cost per mile of aluminum that would be used in the overhead conductors has increased by \$6,600. Moreover, the increased cost of copper used in the XLPE cable has increased \$423,000 per mile during the same period.<sup>294</sup>

Mr. Koonce also explained that, in his opinion, it is unsafe to repair XLPE cable when other cables remain energized in the same duct bank. Magnetic fields from the energized XLPE cables induce voltage and current to flow in the de-energized cables that are being repaired. Mr. Koonce produced an Electric Power Research Institute study regarding safety concerns when working with parallel XLPE cables.<sup>295</sup> Mr. Koonce stated that, because HPFF cables are encased in steel pipes, the arching and induction hazards are essentially eliminated.<sup>296</sup>

Mr. Koonce stated that the vast majority of the country's transmission system is overhead. Cities such as Los Angeles, Chicago, and New York have a "fair amount" of underground transmission lines, and Pacific Gas and Electric Company has recently installed some XLPE underground cable.<sup>297</sup> Mr. Koonce proffered photographs of the Company's Craney Island transmission station which is the conversion point for HPFF cable under the Elizabeth River in Hampton Roads, as an example of the facilities required for conversion between overhead and underground transmission.<sup>298</sup>

Finally, Mr. Koonce described capacitance problems caused by underground cables at the Company's Glebe Road Substation where several underground cables originate and terminate. The Company takes these cables out of service for extended periods of time in the shoulder load months of fall and spring because of voltage rise issues. Mr. Koonce stated that the Company has taken great care to avoid putting customer load on certain cables so that the switching out procedure will not impact customer service.<sup>299</sup>

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<sup>293</sup>Tr. 5176-5179.

<sup>294</sup>Tr. 5181, 5182,

<sup>295</sup>Ex. 153.

<sup>296</sup>Tr. 5186.

<sup>297</sup>Tr. 5191, 5192.

<sup>298</sup>Tr. 5194; Ex. No. 154A, B, and C.

<sup>299</sup>Tr. 5203, 5204.



There are two factors regarding underground lines that need to be understood. First, the rise in capacitance is directly related to the length of the underground line.<sup>300</sup> The longer the overall length of the underground line, the greater the capacitance problem. Mr. Koonce explained that the Company has sixteen 230 kV underground transmission lines in its system, all of which connect to overhead lines. Although several of the Company's 230 kV underground lines are radial lines, each of the radial lines has a second circuit, thereby creating 100 percent redundancy.<sup>301</sup> The important point here is that the Company's existing 230 kV underground lines average about two to three miles in length,<sup>302</sup> and are therefore short enough that the increased capacitance experienced by underground lines is typically not a factor. One exception is the 230 kV transmission line that runs out of the Company's Glebe Substation. This underground transmission line is switched out of service during the spring and fall shoulder seasons because of voltage rise due to decreased demand.<sup>303</sup> Mr. Koonce stated that shunt reactors, which would address the voltage rise problem, have not been installed because of lack of space at the Glebe Substation. Mr. Koonce further stated that the Company does not employ any accessory equipment anywhere on its 230 kV radial underground lines or anywhere on its transmission system to address voltage rise issues.<sup>304</sup>

The design of an underground transmission line is the second factor that needs to be understood. Loudoun County/Leesburg witness Sheerin designed his underground line using XLPE cable with one foot spacing between cables in a single trench. This configuration resulted in an ampacity of 823 MVA. Mr. Koonce modified Mr. Sheerin's design by increasing the horizontal spacing to two feet and retaining one foot of vertical space between the cables, which provided an increased ampacity of 884 MVA. Mr. Koonce then further altered Mr. Sheerin's design by using two parallel trenches and separating the cables by two feet on center and separating the sets of cables by three to four feet in separate trenches. This configuration provided ampacity in excess of 1000 MVA which is comparable to the Company's proposed overhead line. Mr. Koonce noted that his original XLPE design involved two trenches eight feet apart which would achieve an ampacity of 1035 MVA.<sup>305</sup>

Using dual XLPE cables in a common duct bank leads to safety issues. As noted above, Mr. Koonce stated that it would not be safe to work on a de-energized cable with another energized cable in the same duct bank. Mr. Koonce explained that his design of two trenches eight feet apart would alleviate the safety issue of the energized cable inducing voltage on the de-energized cable. Mr. Koonce pointed out that Pacific Gas and Electric Company is designing its future XLPE installation with two trenches fifteen feet apart, thereby allowing one set of cables to be repaired while the other set of cables remains energized and in service.<sup>306</sup>

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<sup>300</sup>Tr. 5347.

<sup>301</sup>Tr. 5343.

<sup>302</sup>Tr. 5347, 5221.

<sup>303</sup>Tr. 5224.

<sup>304</sup>Tr. 5223.

<sup>305</sup>Tr. 5227, 5228.

<sup>306</sup>Tr. 5242.

## **DECISION**

The decision in the case must be based on the application of the facts to the applicable law. Virginia Code § 56-46.1 A provides:

Whenever the Commission is required to approve the construction of any electrical utility facility, it shall give consideration to the effect of that facility on the environment and establish such conditions as may be desirable or necessary to minimize adverse environmental impact. . . .

Virginia Code § 56-46.1 B provides:

As a condition to approval the Commission shall determine that the line is needed and that the corridor or route the line is to follow will reasonably minimize adverse impact on the scenic assets, historic districts and environment of the area concerned. . .

Virginia Code § 56-46.1 C provides:

In any hearing the public service company shall provide adequate evidence that existing rights-of-way cannot adequately serve the needs of the company.

Virginia Code § 56-46.1 D provides:

‘environment’ or ‘environmental’ shall be deemed to include in [its] meaning ‘historic,’ as well as a consideration of the probable effects of the line on the health and safety of the persons in the area concerned.

Virginia Code § 56-259 C provides:

Prior to acquiring any easement of right-of-way, public service corporations will consider the feasibility of locating such facilities on, over, or under existing easements of rights-of-way.

In the Commission’s Guidelines, the first guideline states:

existing rights-of-way should be given priority as the locations for additions to existing transmission facilities, and the joint use of existing rights-of-way by different kinds of utility services should be considered.<sup>307</sup>

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<sup>307</sup>Commonwealth of Virginia State Corporation Commission Division of Energy Regulation, Guidelines of Minimum Requirements for Transmission Line Applications Filed Under Virginia Code § 56-46.1 and The Utility Facilities Act (May 10, 1991), Guidelines for the Protection of Natural, Historic, Scenic, and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities at 1, Item 1.

The second guideline states:

Where practical, rights-of-way should avoid the national historic places listed in the National Register of Historic Places . . . and parks, scenic, wildlife, and recreational lands, officially designated by duly constituted public authorities.<sup>308</sup>

The Commission guidelines also require the utility to “[p]rovide the number of dwellings within 500 feet of the line for each route considered.”<sup>309</sup>

In *Rappahannock League for Environmental Protection, Inc. v. Virginia Electric and Power Company*, the Virginia Supreme Court pointed out that, in reaching a decision regarding an application to construct an electric transmission line, the Commission must recognize competing interests such as growth in industry, business, and home conveniences requiring greater consumption of energy and our natural environment and historic features.<sup>310</sup>

Development in Loudoun County progressed based upon known factors, such as the existing right-of-way along the Trail. This right-of-way along the Trail has been in existence since 1968 and the Park Authority agreed to the right-of-way when DVP deeded the Trail to the Park Authority in 1978 reserving an easement for power lines. Contrary to Save the Trail’s assertions,<sup>311</sup> reservations in the deed are clear and unambiguous.<sup>312</sup> DVP ratepayers paid \$4,910,000 for this right-of-way in 1968.<sup>313</sup> DVP purchased land adjacent to the Trail for the Hamilton Substation years ago based on the presumption that the future transmission line would use the existing right-of-way along the Trail.<sup>314</sup> When DVP sold the property to the Park Authority in 1978 for \$294,056, it retained express and detailed rights to construct and maintain easements for future power lines and facilities.<sup>315</sup> By accepting this restriction in its deed from DVP, the Park Authority agreed in 1978 to allow Dominion to construct, operate and maintain electric transmission lines on the W&OD Trail.

The law requires that DVP prove that existing rights-of-way are inadequate to serve the needs of the Company before the taking of private property by eminent domain can be considered. DVP unequivocally stated in its application that the existing right-of-way on the W&OD Trail can completely accommodate this proposed transmission line without the taking of any private property.<sup>316</sup> Commission Staff also concluded that “an overhead route along the W&OD Trail would be optimal from both engineering and cost perspectives (11 miles at a cost of \$14 to \$18 million).”<sup>317</sup> The route along the W&OD Trail is four miles shorter than the Company’s proposed

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<sup>308</sup>*Id.* Item 2.

<sup>309</sup>SCC Guidelines, Section III.A.

<sup>310</sup>216 Va. 774, 778 (1976).

<sup>311</sup>Save the Trail Brief at 9.

<sup>312</sup>Ex. No. 14.

<sup>313</sup>Ex. No. 13.

<sup>314</sup>Tr. 2278.

<sup>315</sup>The deed states that DVP “reserves unto itself and its successors, the perpetual right, privilege and easement of right of way to lay, construct, operate and maintain” equipment for transmitting or distributing electric power along the W&OD Trail. Ex. No. 14.

<sup>316</sup>Application, Volume I at 51; Tr. 1689; Tr. 2300-2302; Tr. 2072, 2074.

<sup>317</sup>Ex. No. 145, at 46.

E7 route. Staff further points out that this transmission line is the only transmission line that would ever conceivably be built on the W&OD Trail west of the Pleasant View Substation. Therefore, if this right-of-way is not utilized for this transmission line, Staff states that the Company effectively loses the use of this portion of its existing right-of-way.<sup>318</sup>

However, even if existing right-of-way can completely accommodate this project, the environmental impact must be weighed. The Park Authority and Save the Trail argue their case based on the premise that the proposed transmission line would be placed down the center of the W&OD Trail for the entire distance between Pleasant View Substation and the proposed Hamilton Substation. The evidence in this case shows that such routing is unnecessary, and no one in this case is seriously advocating doing this.<sup>319</sup>

Commission Staff pointed out in its prefiled testimony that a route could be developed utilizing Trail segments B and D thus avoiding the popular, heavily canopied portion (Trail A) of the Trail west of Paeonian Springs and VDOT's sensitive portion of Route 7 between Paeonian Springs and the west side of Leesburg. Staff further maintained that the downtown Leesburg segment of the Trail could be avoided by using the Route 7 Bypass. Staff pointed out that a route using a combination of the Trail and Route 7 would be a short route that would make extensive use of existing right-of-way, thus minimizing cost. Staff testified that the paralleling of high-speed, high-volume roads is sometimes considered to be desirable when siting a transmission line since the area is already extremely disturbed by human activity and structures.<sup>320</sup>

The primary difference between the route suggested by Staff and the modified D route is that the modified D route would use segments 19 and 20 instead of segment 40, thereby avoiding Trail D, Beauregard Estates subdivision, and Kincaid Forest subdivision. Staff witness Martin described the modified D route as a reasonable approach for constructing a transmission line from the Pleasant View Substation to the proposed Hamilton Substation. Mr. Martin described the Market Street section traversed by segment 19 of the modified D route as "not a terribly pleasant place" that is fairly impacted with traffic and commercial developments.<sup>321</sup> Mr. Martin further described the Route 7 Bypass traversed by segments 16, 12 a, 48, and 11 prime as a "road with a great deal of traffic, a great deal of noise." Mr. Martin testified that "it's a general principle regarding transmission lines to look at these kinds of roads to parallel for routing a transmission line."<sup>322</sup>

### *Notice*

Many residents along the Trail claim they had no notice of the DVP easement. They maintain that, because the existing right-of-way is not on their property, it did not show up on their title searches. While this is certainly an understandable claim, it is difficult to comprehend how local residents and users of the Trail, who can readily observe a 230 kV transmission line going into

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<sup>318</sup>Id. at 36.

<sup>319</sup>Tr. 4268.

<sup>320</sup>Ex. No. 145, at 29.

<sup>321</sup>Tr. 4838. The Company notes on page 53 of its brief that this portion of the modified D route was not a focus of concern by the parties.

<sup>322</sup>Tr. 4838, 4839.

the Pleasant View Substation in southeast Leesburg with poles in the middle of the Trail, failed to realize the possibility that the remainder of the Trail would be used as an electric transmission corridor as well.

Sheila Mackey, a resident of Shenstone, testified that when her family first looked at Shenstone as a place to live, they were asked to sign a form acknowledging that they were aware of the potential of power lines being placed on the W&OD Trail. Ms. Mackey stated that, although her family liked a particular lot (lot 18), they refused to sign the form and continued their search elsewhere. Several months later, when Ms. Mackey read in a newspaper and heard on the local news that the power line would not be placed on the Trail, she went back and purchased lot 18 in Shenstone and has since built a home there.<sup>323</sup>

Nasser Zahiri, a Shenstone resident, stated that he paid a premium of an additional \$60,000 for his lot because of an article published in The Washington Post in September of 2004 claiming that DVP no longer intended to put the transmission line on the W&OD Trail in the Shenstone area.<sup>324</sup> Certainly, it appears that people were aware of the transmission line, and at least some of the Shenstone lots adjacent to the Trail were priced accordingly.

Opponents of the modified D route complain that it was put together at the last minute and has not been studied thoroughly. However, it should be remembered that, only after agreeing to take its existing right-of-way along the Trail out of consideration in October of 2004, did the Company retain the services of its routing consultant, Burns & McDonnell. With the Trail having been eliminated from consideration, Burns & McDonnell conducted a study with the intention of putting together a southern route which became the Company's proposed E7 route. During the hearing, Company witness Bailey revealed that the Company did not develop its proposed E7 route until as late as March of 2005.<sup>325</sup> The Company filed its application on April 14, 2005. Therefore, the Company's proposed E7 route evolved just before the application was filed, and the public did not have the same opportunity to comment on the southern routes as they did with the Company's original proposal to utilize the Trail.<sup>326</sup>

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<sup>323</sup>Tr. 4771, 4772.

<sup>324</sup>Ex. No. 133, at 2, and Attachment 4.

<sup>325</sup>Tr. 2517.

<sup>326</sup>In its initial evaluation of routes, the Company focused on its existing right-of-way along the W&OD Trail. DVP spent approximately nine months on internal study, extensive consultation with state government agencies, and in dialogue with government officials and the general public. (Application, Appendix I at 50-51; Application, Appendix II, Attachment 2.H.1, page 2; Ex. No. 43, at 3-7.) DVP established a working group that included affected local governments, the Park Authority, Commission Staff, VDOT, the Leesburg Tree Commission, and Allegheny Power. (Ex. No. 43, at 3-4.) This working group held four meetings from May through August of 2004; all meetings except one were open to the public. In addition, DVP held one or more meetings with each of several interested private and public parties, including the Park Authority, VDOT, Loudoun County, the Towns of Leesburg, Purcellville, and Hamilton; local area legislators and representatives of various community and neighborhood groups. (*Id.*) In September of 2004, DVP notified local legislators of its decision to drop its consideration of the Trail. (Application, Appendix II, Attachment II.A.7.b; Ex. No. 43, at 7.) Only then did DVP expand its study area to include areas south of Leesburg and retain Burns & McDonnell to undertake a routing study resulting in the southern routes. (Ex. No. 43, at 7; Tr. 2306.) Although DVP held a single informal open house, two meetings with the Loudoun County Board of Supervisors, and one follow-up session with the Trail working group in October and early November of 2004, this was prior to development and publication of the southern routes. There was little replication of the extensive public meetings and consultations with owners of properties affected by the southern routes that had characterized the Trail-study phase. (Tr. 1867-1868; Tr. 2318-2319.)

### *Residential Impact*

The most notable downside to the modified D route is the residential impact, 720 homes within 500 feet of the line, versus 38 homes within 500 feet of the E7 route. As Staff witness Martin observed, however, although “a significantly higher number of residences would be within 500 feet of the line. . . most of these residences are currently in close proximity to the heavily traveled Route 7.”<sup>327</sup> “[P]erhaps there’s a less expectation of a pleasant environment free of transmission lines, free of noise.”<sup>328</sup> Mr. Martin further notes that “the paralleling of high-speed, high-volume roads is sometimes considered to be desirable when siting a transmission line since the area is already extremely disturbed by human activity and structures.”<sup>329</sup> Moreover, Cyril Welter explained that, along the Route 7 Bypass which has a heavy concentration of apartment buildings, he counted each apartment building as six residences and he could not confirm that all of the apartments were occupied. The vast majority of the homes impacted by the modified D route are located in densely developed areas that are closely adjacent to Route 7 and, in some instances, on the opposite side of Route 7 from the modified D route. Thus, the impact of co-locating additional infrastructure along Route 7 would have less of an impact than routing this line through rural areas of Loudoun County that have deliberately been preserved from modern development. Again, the modified D route incorporating the B.1 segment would avoid the taking of any homes.

With regard to the impact of the transmission line on property values, Scenic Loudoun presented the testimony of James L. Ruffner; Kincaid Forest presented the testimony of Steven D. Clauson; and the Company presented the testimony of Richard L. Parli; all are real estate appraisers. Mr. Ruffner and Mr. Clauson testified that proximity to transmission lines negatively impacts property values. Mr. Parli disputed that assumption. Mr. Ruffner did, however, make some astute observations. The first observation was that urban/suburban homeowners are more willing to accept noise, traffic, and airports in exchange for the convenience of the city and the amenities it offers. Rural homeowners forfeit the conveniences of urban/suburban living in return for peace and quiet and unspoiled vistas. Mr. Ruffner further observed that the housing market and the degree of demand affect sales of homes near transmission lines. For example, if there is excess demand and a limited supply of homes, the proximity of a power line will have little impact on the sale or the price of the home. On the other hand, if there is an oversupply of homes and a home is in close proximity to a power line, the purchase price and the chance of that home selling quickly are probably reduced.<sup>330</sup> In essence, the impact of a power line on the value of a home depends on the housing market. In addition, evidence was presented showing that communities and economies thrive in the vicinity of transmission facilities and that such facilities do not deter new residential and commercial development, even immediately adjacent to existing overhead transmission corridors.<sup>331</sup>

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<sup>327</sup>Ex. No. 145, at 49.

<sup>328</sup>Tr. 4839.

<sup>329</sup>Ex. No. 145, at 28, 29.

<sup>330</sup>Tr. 3901, 3902.

<sup>331</sup>Ex. No. 157, at 20, 21; Ex. No. 159, at 2-4.

### *Historic Resources*

Loudoun County and Leesburg have a wealth of historic resources. The Trail advocates characterize the Trail as an historic resource that should not be impacted with a transmission line and point to its eligibility for designation by the Virginia Department of Historic Resources and the National Historic Register. What must be realized and understood, however, is that the trees along the Trail are not a part of its historic heritage. The Trail is located on a former railroad bed; at the time the railroad was active it is unlikely there was a tree anywhere along its entire length. The stone bridges and culverts are historic, but the Company has gone to great lengths to assure that these structures can and will be well protected from any activity involving the construction or operation of this transmission line. The stone arch bridge at Clark's Gap is a good example of an historic bridge over the Trail. This bridge is completely avoided by the use of segment 46 prime. Further, Company witness Bailey noted that if the Trail is eligible for historic designation with thirty miles of transmission line currently on the property, this addition should not preclude the Trail from eligibility for historic designation.<sup>332</sup>

The W&OD Trail is primarily considered to be a recreational resource with historic values placed on its bridges, stations, and other railroad facilities. The Trail has been deemed eligible for listing on the National Register of Historic Places for its contribution to the broad patterns of the history of Northern Virginia in the areas of transportation and commerce. In short, the Trail's primary value has always been as a transportation corridor and its historic significance is not based on a setting that includes sweeping viewsheds.

The Company's proposed E7 route would impact a significant number of historical assets including Rokeby, Oatlands Plantation, Oatlands Historic District, the Route 15 Journey Through Hallowed Ground Corridor, Fairfarm, and the Goose Creek Historic District. The Company's proposed E7 route also impacts three Scenic Byways. Unlike the mitigation measures that can be taken along the Trail, the impacts of an overhead transmission line on the Company's proposed E7 route would be difficult to mitigate.

### *Cost*

The Company estimates the cost of the transmission line using its proposed E7 route to be \$30.44 million. The Company estimates the cost of the proposed Hamilton Substation at \$2.75 million.<sup>333</sup>

The Company estimates the cost of the transmission line using the modified D route incorporating segment 7, and options B.1 and B.5 including 145-foot towers along the Trail to be \$29,000,849.<sup>334</sup>

Orme Farm and Cammack Brothers' witness Kenneth Strobl testified that the Company has understated the cost of the proposed E7 route because the E7 route has more abrupt changes in direction compared to the W&OD Trail route, thereby requiring more expensive angle towers.

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<sup>332</sup>Tr. 5588.

<sup>333</sup>Application Volume I, at 29.

<sup>334</sup>Tr. 2868.

Coupled with the greater overall length of the E7 route, Mr. Strobl estimates that the Company's construction cost estimate of \$30.4 million is certainly understated, perhaps by 20 percent or more.<sup>335</sup>

Mr. Strobl, a civil engineer, walked the Trail north of Shenstone and described the curvature along the Trail as gradual, and not very sharp. In Mr. Strobl's opinion, subject to actual pole placement, the gradual curvature of the Trail would accommodate span lengths of 500 to 600 feet and not require "as many angled towers as one might think."<sup>336</sup>

Scenic Loudoun witness Sylvester also presented testimony comparing construction costs of the modified D and the proposed E7 routes. He concluded that construction complexity for the E7 route was much greater and therefore, more expensive than the modified D route.<sup>337</sup>

Park Authority witness Simmons testified that, because of the increased number of angle structures necessary to accommodate the natural curvature of the Trail, the cost of the modified D route would be higher than estimated.<sup>338</sup>

The Company maintains that its cost calculations show there is not a significant cost difference among the routes under consideration; therefore, cost is not a significant factor differentiating the overhead alternatives.<sup>339</sup>

Company witness Cox presented a generic per mile construction cost estimate of \$1,372,727 applicable to all routes.<sup>340</sup> Although counsel for Save the Trail tried to get Mr. Cox to state that construction cost for the Trail would be higher, Mr. Cox stood by his estimate. Since the modified D route is approximately four miles shorter than the proposed E7 route, it is reasonable to conclude that construction costs for the modified D route would be approximately \$5,490,908 less than construction costs for the proposed E7 route. Company witness Cox testified that use of the B.1 option at the Hertz property, which I am recommending, would tend to reduce cost because it would eliminate right-of-way cost at this location.<sup>341</sup> In addition, I am recommending that the line be moved closer to or onto Trail property in Shenstone which would also reduce right-of-way cost.<sup>342</sup> Although the 145-foot towers would cost 25 percent more than the standard 120-foot towers, Mr. Cox testified that the overall increase in cost would be so small it would be negligible.<sup>343</sup>

Most respondents argue that the route they propose will cost less than the route they oppose. The fact is that exact final costs will not be known until a route is approved and a final engineering study is completed. Otherwise, I find the Company's cost estimates to be reasonable with the caveat that right-of-way acquisition costs for the proposed E7 route are probably underestimated due to rapid subdivision approval by the County and stated opposition by impacted landowners.

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<sup>335</sup>Ex. No. 127, at 10, 11.

<sup>336</sup>Tr. 4631, 4634.

<sup>337</sup>Tr. 2769-2773.

<sup>338</sup>Tr. 4427-29, 4496-99.

<sup>339</sup>Ex. Nos. 46 and 53; Ex. No. 58, at 7; Ex. No. 68; Ex. No. 128, at 4.

<sup>340</sup>Ex. No. 53; Tr. 2868.

<sup>341</sup>Tr. 3212.

<sup>342</sup>Tr. 3141-3143.

<sup>343</sup>Tr. 3216.



Loudoun County witness Sheerin estimated the cost of installing XLPE underground cable on the Company's 15.7 mile E7 route, excluding right-of-way at \$74,441,672.<sup>344</sup> Orme Farm and Cammack Brothers' witness Lewis estimated the cost of installing by direct burial XLPE underground cable along any route at 2.5 to 3 times the cost of overhead construction.<sup>345</sup> Company witness Koonce estimated the installation of XLPE underground cable at \$80.4 million and installation of HPFF underground cable at \$91.4 million, both along the Trail.<sup>346</sup> All of the underground estimates exclude right-of-way cost and the cost of voltage regulation equipment which Mr. LaVigne estimates at \$5.5 million to \$6 million.<sup>347</sup>

### *Modified D Route*

The modified D route follows Staff's concept, but is based on the Company's D3 route. The primary difference between the D3 route and the modified D route is the use of Trail B to avoid Digges Valley and the Goose Creek Historic District. The modified D route avoids areas that are most sensitive to VDOT and the Park Authority. Opportunities for mitigation measures are abundant with the modified D route and there is no reason for the Park Authority and Save the Trail to paint a worst case and frankly, unrealistic scenario. While Save the Trail is correct that routing the proposed transmission line down the middle of the Trail between Pleasant View Substation and the proposed Hamilton Substation would change the existing character of the Trail,<sup>348</sup> the modified D route would not change the existing character of the Trail or materially interfere with existing public use.

The modified D route incorporates more existing right-of-way than any other route. Most of the modified D route would use existing right-of-way out of Pleasant View Substation and VDOT right-of-way along Route 7 and would impact only approximately 2.3 of the 11 miles of Trail between the Pleasant View and Hamilton Substations. The impact of the transmission line along the Trail can be mitigated by the use of 145-foot towers and selective pruning and removal of trees and vegetation. Donald Hoover, DVP's forestry expert, has eleven years of experience in maintaining vegetation under electric facilities along the Trail. Mr. Hoover testified that, even if the transmission line were placed down the middle of the Trail (again, which no one is proposing), 50 percent of the canopy on the Trail could be preserved.<sup>349</sup> Company witness Bailey also stated that the "W&OD Trail could still be used for recreation after the line is installed, as it is in Arlington, Fairfax, and Loudoun counties where transmission lines presently exist. . . ."<sup>350</sup>

Mr. Hoover further testified that, if the modified D route is approved, DVP would work with the Park Authority concerning management of the trees and vegetation. Mr. Cox testified that DVP would make every effort to keep either the pedestrian trail or the equestrian trail open during construction as long as there was no danger to the public.<sup>351</sup>

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<sup>344</sup>Ex. No. 58, at 7.

<sup>345</sup>Ex. 128, at 4.

<sup>346</sup>Ex. No. 151, at 15; Tr. 5178.

<sup>347</sup>Tr. 5126-5127.

<sup>348</sup>Save the Trail Brief at 8, 9, 16.

<sup>349</sup>Tr. 2898-2899, 3065; Ex. 48. Mr. Hoover explained that DVP would try to save the trees providing the canopy and only remove the tall growth trees that would be a danger to the line. Tr. 3012, 3013.

<sup>350</sup>Ex. 43, at 6, 7.

<sup>351</sup>Tr. 2892.

In contrast, the Company's proposed E7 route is 15.7 miles long and although it is the longest of all the routes considered, it uses only 1.7 miles of existing right-of-way. It would require the greatest amount of condemnation of land for new right-of-way. The proposed E7 route would also be the most expensive alternative short of placing the line underground.

The modified D route would parallel the W&OD Trail for 2.3 miles along a segment ("Trail B") that avoids the Leesburg Historic District, the Paeonian Springs Historic District, and the section of the Trail that is generally considered to have the most tree cover. The entire length of the Trail is 45 miles. The length of the Trail between Pleasant View Substation and the proposed Hamilton Substation is 11 miles. The portion of the Trail impacted by the modified D route is 2.3 miles, 1.3 miles of which is in deep cuts. The deep cuts are primarily located behind the Shenstone development, and placing the line at the edge of the Trail property or slightly on the north side of the Trail property with the existing distribution line would avoid the cuts and make the transmission line practically invisible to Trail users.

Moreover, the modified D route would generally place the transmission line parallel to, but in most instances, just beyond the northern border of the Trail property thereby minimizing tree removal and other impacts on Trail users.<sup>352</sup> This is evident when one realizes that the Trail property is 100 feet wide, but the actual paved pathway is 8 to 10 feet wide and generally located in the middle of the 100-foot corridor. The trimming or removal of a few trees along the northern edge of the Trail property will, in most instances, have little, if any effect on Trail users and their enjoyment of the Trail. The use of 145-foot towers would allow maximum retention of tree cover on the Trail. Furthermore, the line could be co-located with the existing distribution line and its 30-foot right-of-way that runs along the northern boundary of the Trail at this location. The Company has agreed to use a combination of careful routing, tower placement, and construction techniques designed to reduce the impact on the Trail.<sup>353</sup>

The B.1 option would place the line on the Trail property for a distance of 1,103 feet. As noted, the terrain at the Hertz property is relatively flat and there is negligible canopy along the Trail at this point. While the transmission facilities would be visible to Trail users at this point, it would be for a relatively short distance. Taking into consideration the fact that the Trail and the adjacent distribution line provide 130 feet of existing right-of-way along much of the Trail B section, there would be relatively little impact overall to the Trail if the modified D route is approved.

Park Authority witness Paul McCray predicts major devastation to the Trail if the Trail is used as right-of-way. However, it is important to realize that Mr. McCray's scenario is applicable only if the proposed transmission line is placed down the center of the Trail with 110-foot towers.<sup>354</sup> Again, no one is proposing to do that.<sup>355</sup> In fact, Mr. McCray admitted that if the line were placed just off the Park Authority property, the trees along the Trail would not "come into play."<sup>356</sup>

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<sup>352</sup>Tr. 2194-2208; 2896-2900; 2919-2922; 3017-3021; 3025-3028; 3067-68.

<sup>353</sup>Ex. No. 98, at 9-10, 15-16; Ex. No. 110, at 407; Tr. 2883-2895, 2939, 3002-3011, 3068-69.

<sup>354</sup>Tr. 4267, 4269.

<sup>355</sup>Tr. 4268.

<sup>356</sup>Tr. 4270.

If the modified D route were approved, I would recommend that option B.1 be used because it would avoid condemning the Hertz rental house. Mr. Hertz has wisely prepared for a transmission line on the Trail and option B.2 would destroy his well-planned screening efforts. From the end of option B.1, I would recommend that option Trail B Prime be utilized which would place the right-of-way approximately ten feet to the north of the Trail boundary to the point where option B.5 begins. The right-of-way may need to be moved closer to, or in some places, onto the Trail property in order to move the line as far from the Shenstone homes as possible. Option B.3, which would place the transmission line down the middle of the Trail property, is unnecessary because the line can be moved closer to or onto Trail property at its northern boundary. The Trail has deep cuts behind Shenstone and much of the Trail canopy grows out of the steep sides of these cuts. Placing the transmission line at the top of these cuts with 145-foot towers would preserve the Trail canopy and move the line away from the Shenstone homes.

I recommend option B.5 be utilized instead of option B.4 because it takes the transmission line from Shenstone at the earliest possible point. Option B.5 would cross the Trail and Dry Mill Road, intersect and follow the existing distribution line through a pasture on the south side of Dry Mill Road where it would join segment 49a at its angle and proceed east to segment 10a and segment 11 prime. Segments 49a and 10a rejoin the existing distribution line and therefore the modified D route would once again incorporate existing right-of-way.<sup>357</sup> Once off the Trail, the Company would use standard poles which would require eighty feet of right-of-way, thirty feet from the existing right-of-way and fifty feet of new right-of-way.

The described route along Trail B would require three or four poles on Trail property and would cause minimal loss of canopy. While several lots at Shenstone would be impacted, no homes would be condemned since the right-of-way would be located at the rear of these lots at the boundary with the Trail property line. The route in this area should incorporate existing right-of-way from the distribution line that parallels the Trail.

I further recommend segment 7 prime be incorporated into the modified D route rather than segment 8. Segment 7 prime parallels Route 7 on its north side between segments 4 and 45 prime. Segment 8 parallels Route 7 on the south side and is closer to Old Route 7, a Scenic Byway.

The Company's southern routes are also heavily influenced by open space easements. The Company views open space easements as "problematic."<sup>358</sup> Counsel for the Company stated at the hearing that open space easements held by public bodies could affect the Company's ability to acquire the necessary right-of-way in a timely fashion and meet the project in-service date, which is a key concern in identifying viable routes.<sup>359</sup> Indeed, the Company's choice of the E7 route over the C routes was based on open space easements encountered by the C routes. The Company states in its brief that there was no reasonable alternative routing around the open space easements that surround the C routes on the west side of Route 15 because of the Goose Creek Historic District, although the Company retained the C5 and C6 routes for further consideration.<sup>360</sup> The Company's

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<sup>357</sup>Tr. 3312, 3313.

<sup>358</sup>Tr. 2489-92.

<sup>359</sup>Tr. 2489-92, 2518-2521.

<sup>360</sup>Company Brief at 20.

last minute adjustment to its proposed E7 route at Foxfield avoids an open space easement held by Mr. Perry but increases the impact on the Perry and Spriggs residences.

For a number of reasons, the modified D route is the route that would best serve the public interest. The use of existing right-of-way is the most significant advantage. Certainly it is in the public interest to utilize existing right-of-way where feasible rather than condemn private property by eminent domain where property owners are opposed. With the exceptions of segments 46 prime and 11 prime, the modified D route is within, shares, or is adjacent to existing right-of-way. Combined, segments 46 prime and 11 prime total less than one mile,<sup>361</sup> leaving approximately eleven miles<sup>362</sup> of line that make use of existing right-of-way. The modified D route, with mitigations, would protect the tree canopy along the W&OD Trail, reduce impacts on private property, and lower the overall cost of acquiring new right-of-way.

Conversely, these same mitigation measures are not available for the Company's proposed E7 route.<sup>363</sup> Kathryn King testified there are more and larger areas of higher quality forest resources along the E7 route than along the W&OD Trail that would be impacted by the proposed transmission line.<sup>364</sup> Unlike the Trail where mitigation measures can be taken, it would be difficult to avoid impacts to forested land along the E7 route.

The Company contends that on balance, however, the proposed E7 route impacts relatively few residences, avoids any significant impacts on historical resources, and completely avoids the W&OD Trail, which was a key concern of members of the public and governmental officials. Probably the most attractive feature of the southern route for the Company is that it would establish right-of-way for a future line from Middleburg to Hamilton Substation. However, everyone in this proceeding agrees that what may or may not happen or be required in the future should not be a factor in deciding this case. For instance, the technology of undergrounding electric transmission lines is advancing, and by 2020 it is entirely possible that the most practical solution would be to place that line underground. If Loudoun County offered to contribute to the cost and the Company agreed to place the Middleburg to Hamilton line underground, right-of-way may not even be an issue with that future line.

### *VDOT*

With regard to co-location of this transmission line within VDOT right-of-way along Route 7, VDOT has promised to work closely with DVP, and DVP has expressed confidence that it would be able to resolve all remaining issues.<sup>365</sup> The modified D route would avoid the section of Route 7 between its intersection with Route 9 and its intersection with Dry Mill Road, the portion of Route 7 that VDOT considers most sensitive.<sup>366</sup> In other areas where expansions are planned, VDOT will expand inward along the median while leaving the exterior right-of-way unaffected,

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<sup>361</sup>Segment 46 prime is less than 3,000 feet (Tr. 2565) and segment 11 prime is less than 2,000 feet in length. (Tr. 2566.)

<sup>362</sup>Ex. No. 53.

<sup>363</sup>Tr. 3075.

<sup>364</sup>Ex. No. 72, at 4.

<sup>365</sup>Tr. 4814-4815, 4827; Tr. 1816-1818, 2976-2978, 3061; Tr. 5567-5568.

<sup>366</sup>Tr. 965, 979-980; Tr. 2981; Tr. 5539-5542, 5555-5556, 5638.

except possibly for limited acceleration and deceleration lanes at particular intersections.<sup>367</sup> VDOT has concluded that overhead transmission line poles could be accommodated within the footprint of major intersections along Route 7 and the Route 7 Bypass.<sup>368</sup>

On brief, Leesburg contends that because VDOT has not issued a special exception permit, none of the D routes including the modified D route are viable.<sup>369</sup> This assertion is as misleading as it is incorrect. It was made clear at the hearing that the Company cannot request a permit from VDOT until a determination is made in this case by the Commission and the final engineering is completed.<sup>370</sup>

Further, VDOT witness Heltzel testified that, if the Commission determined that the E7 route was not in the public interest and approved the modified D route instead, VDOT would accept that determination and move forward with the project.<sup>371</sup> Company witness Bailey also stated that if the Commission found that the D routes should be used, VDOT would be able to grant an exception to their criteria.<sup>372</sup>

### *Airport and Aviation*

In response to concerns raised primarily by public witnesses to segment 50 of the Company's proposed E7 route where it crosses a ridge near the highpoint of Hogback Mountain, Company witnesses Cox and Welter investigated these concerns and concluded that any impacts from the transmission line would be minor.<sup>373</sup> It is at this point that pilots operating under visual flight rules need to fly into and out of Leesburg Airport between a minimum altitude of 1,200 feet and a maximum altitude of 1,500 feet, per FAA regulations. Public witnesses claim that the height of the poles, 120 feet, on the Company's proposed E7 route would narrow this 300-foot window, making the approach and departure from the airport unsafe.

The Company maintains that the transmission line crossing this ridge would not reduce the aviation window by a full 120 feet. Company witness Cox testified that a 100-foot pole structure could be used to cross the ridge and that the pole structures could be positioned further down the slopes of the ridge. The Company claims that by using 100-foot pole structures, the size of the vertical flight window would be impacted by approximately ten feet.<sup>374</sup>

Although the Company can design its line to minimize the reduction of the flight window over this ridge, there are inevitable trade-offs. For instance, reducing the height of the line will increase the number of trees that would have to be removed. This ridge contains part of the mature forest between Davenport and Perry with some trees reaching 80 feet in height. Moreover, any crossing of the ridge with a transmission line will reduce an already small aviation window, thereby increasing the danger to aircraft.

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<sup>367</sup>Ex. 9, at 7-9; Tr. 926-927, 970-97.

<sup>368</sup>Tr. 932-936, 973-974.

<sup>369</sup>Leesburg Brief at 33, 42, 44.

<sup>370</sup>Tr. 3310.

<sup>371</sup>Tr. 4817.

<sup>372</sup>Tr. 2541-42.

<sup>373</sup>Ex. No. 156, at 5, 6; Ex. No. 161, at 12-16; Tr. 1820-23, 5653-54.

<sup>374</sup>Company Brief at 30.

The Company has determined that the line would not cause problems if it were placed to the north or south of the runway.<sup>375</sup> Both the modified D route and Company's proposed E7 route would cross the approach to the airport on terrain that is lower than the elevation of the runway. Once a route is approved, the Company will coordinate with the Federal Aviation Administration ("FAA") regarding the line's construction and operation in compliance with FAA regulations.<sup>376</sup>

A key factor to consider regarding the Leesburg Airport is that it has only one runway and the only direction it can expand its single runway is to the south where the Company's proposed E7 route would cross the flight path at a ninety degree angle. On the north end of the runway and flight path, there are apartment buildings between the airport and the Route 7 Bypass which would be segment 12a of the modified D route. It is also important to note here that segment 12a is on the far side of the Route 7 Bypass where there are no residences and the highway would be between the transmission line and the airport. Furthermore, the modified D route would avoid the approach over the ridge on Hogback Mountain. For these reasons, I find that the modified D route would have less overall impact on the Leesburg Airport.

### *Finding*

I find that the modified D route incorporating segment 7 prime, options B.1 and B.5 should be approved. The law creates a presumption in favor of using existing right-of-way over the condemnation of private property; this proposed transmission line could be constructed entirely within the W&OD Trail without having to condemn any private property whatsoever.<sup>377</sup> The modified D route accomplishes several things: it avoids the most sensitive portions of the Trail around Paeonian Springs and Leesburg; it avoids the most sensitive areas of Route 7 between its intersection with Route 9 and its intersection with the Trail on the southwest side of Leesburg; it avoids any significant impact to the tree canopy along the Trail; and it avoids large scale condemnation of private property by incorporating existing right-of-way for almost its entire length. It also avoids using the Trail (Trail C) through downtown Leesburg. The modified D route is four miles shorter than the Company's proposed E7 route and it maximizes the use of existing right-of-way as is generally favored under Virginia law. Moreover, the modified D route incorporating segment B.1 would not require the taking of any homes. I would recommend the use of 145-foot towers along the Trail where appropriate to retain the tree canopy.

Overall, the modified D route maximizes the use of existing Company and VDOT right-of-way while mitigating environmental impacts. The modified D route avoids any historic districts.<sup>378</sup> Moreover, the Company is confident it can obtain the necessary right-of-way for the modified D route in a timely manner which is critical to having this line built and energized by the summer of 2008. Each respondent can present an argument as to why his or her asset should not be impacted. While it is true that all impacts of this transmission project cannot be completely avoided, the modified D route impacts are reasonable. When evaluating the proposed E7 route and the modified D route, it comes down to a choice between maximizing the use of existing right-of-way, both Company and VDOT, or condemning miles of private property, in many instances against the

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<sup>375</sup>Tr. 2617.

<sup>376</sup>Ex. No. 161, at 14-15.

<sup>377</sup>Tr. 2557.

<sup>378</sup>Tr. 2568.

owners' vehement opposition. There are property owners along the modified D route who are opposed to having this transmission line on their property. However, the extent of condemnation required for the modified D route is far less than for the E7 route.

However, if the Commission decides to approve the Company's proposed E7 route, I recommend that Mr. Strobl's adjustments sponsored by Orme Farm/Cammack Brothers be rejected. Mr. Strobl's alternative would actually affect more wetlands than the proposed E7 route and would move the line closer to Rokeby and existing subdivisions to the north of the E7 route. However, the Company's adjustment to the E7 route would offer a wider tree buffer to the Cammack residence and would not create additional adverse impacts. If the Commission approves the proposed E7 route, I recommend that the Company's adjustment as indicated in Exhibit No. 76 be adopted.

Further, if the Commission approves the Company's proposed E7 route, I recommend the Company's adjustment around the Perry property at Foxfield be adopted. This adjustment would move the line from the woods behind the Perry residence to a field between the Perry and the Spriggs residences. This adjustment would bring the line approximately 250 feet from the Spriggs residence and approximately 220 feet from the Perry residence, significantly impacting both residences. Because of the delay anticipated by the Company in gaining approval to cross open space easements coupled with the need to have this transmission line in service by the summer of 2008, and the fact that the Company's adjustment would avoid placing the line directly over the native American burial mound, I find this adjustment to be reasonable.

If the Commission adopts the proposed E7 route, I am unable to make a recommendation regarding the adjustment requested by Mr. Dunn to route the line around the perimeter of Fairfarm, because the impacts of the deviation are not addressed in this record.

Finally, if the Commission adopts the Company's proposed E7 route, I recommend implementing option 2 as depicted on Exhibit 50. This adjustment would preserve Mr. Virts' plans for developing a youth sports park.

### *Underground*

Usually transmission lines are constructed underground to cross bodies of water, navigate heavily urbanized areas, or provide for national security. The primary reasons supporting undergrounding in this case involve aesthetics and avoidance of EMF. As the testimony has shown, placing transmission lines underground does not necessarily shield EMF. Even though construction of the proposed transmission line underground would cost under \$100 million with necessary voltage regulation equipment, proponents argue that factoring in life-cycle costs would make the cost of underground more competitive with overhead construction. Proponents also argue that underground lines are more reliable because they are not subject to the effects of weather.

The Company is adamantly opposed to constructing this transmission line underground. The Company states that it meets its obligation to provide reliable electric service at reasonable rates by utilizing overhead transmission facilities whenever possible. Of the approximately 6,100 miles of lines in the Company's transmission system, the Company points out that less than one percent (50 miles) are underground facilities, and of those, only 36 miles are 230 kV lines. The

Company explains that it utilizes primarily overhead transmission lines because its experience has shown that underground lines compromise service reliability, cause operational problems, and cost significantly more than overhead lines.

I find this transmission line should be constructed overhead as opposed to underground. What advocates of an underground line must understand is that this Commission must take into consideration not only the citizens of Leesburg and Loudoun County, but all of DVP's ratepayers. Neither Leesburg nor Loudoun County has offered or proposed to contribute toward the significant additional cost of placing this transmission line underground. DVP's ratepayers would have to pay the additional cost. Furthermore, even if an underground transmission line is less subject to failure, which is debatable, the repair time for overhead transmission lines can be a matter of hours, while the repair time for underground transmission lines is usually a matter of weeks. Because this transmission line is a radial line, at least some customers would be without service during that repair time. Commission Staff points out that the Commission has never approved placing a transmission line underground for aesthetic purposes. I find the record in this proceeding does not provide sufficient reasons for constructing this transmission line underground.

## **FINDINGS AND RECOMMENDATIONS**

Based on the record in this case, I find that:

1. There is a need for the Company's proposed 230 kV Pleasant View to Hamilton transmission line;
2. There is a need for the Company's proposed Hamilton Substation;
3. Construction of the proposed transmission line and substation is required by the public convenience and necessity;
4. The Company has failed to prove that existing rights-of-way cannot serve the needs of the Company;
5. The proposed transmission line should not be constructed underground;
6. An overhead transmission line along the modified D route incorporating adjustments B.1 B.5, segment 7 prime, and using 145-foot towers where appropriate will reasonably minimize the adverse impact on scenic assets, historic districts, and the environment of the area concerned;
7. No other viable route for the location of the transmission line exists that is not in conflict with the public interest;
8. There is no evidence in this proceeding, scientific or otherwise, to conclude that electric and/or magnetic fields pose a risk or hazard to human health; and



9. The Company should follow federal EPA guidelines in its application of herbicides for right-of-way maintenance.

In accordance with the above findings, ***I RECOMMEND*** that the Commission enter an order that:

1. ***ADOPTS*** the findings contained in this Report;
2. ***GRANTS*** the Company's application to construct the proposed overhead transmission line and substation;
3. ***AMENDS*** the Company's current certificates of public convenience and necessity to authorize construction of the proposed transmission and substation facilities; and
4. ***DISMISSES*** this case from the Commission's docket of active cases.

### **COMMENTS**

The parties are advised that any comments (Section 12.1-31 of the Code of Virginia and 5 V AC 5-20-120 C) to this Report must be filed with the Clerk of the Commission in writing, in an original and fifteen (15) copies, within twenty-one (21) days from the date hereof. The mailing address to which any such filing must be sent is Document Control Center, P.O. Box 2118, Richmond, Virginia 23218. Any party filing such comments shall attach a certificate to the foot of such document certifying that copies have been mailed or delivered to all counsel of record and any such party not represented by counsel.

Respectfully submitted,

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Howard P. Anderson, Jr.  
Hearing Examiner

A copy hereof shall be sent by the Clerk of the Commission to all persons on the official Service List in this matter. The Service List is available from the Clerk of the State Corporation Commission, c/o Document Control Center, 1300 East Main Street, First Floor, Tyler Building, Richmond, VA 23219.